



PURCHASING

PURCHASE FOR PROFIT

JUNE, 1950

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A CONOVER-MAST PUBLICATION • 50 CENTS

4 **examples of** **INCREASED** **PRODUCTION and** **LOWERED COSTS**

**achieved with Texaco Lubricants and
Lubricating Engineering Service**

1 Over \$2,000 a month saved
for one manufacturer in the oper-
ation of five hydraulic milling
machines.*

2 Production per cutter life
doubled on a gear cutting opera-
tion.*

3 This manufacturer reduces
cutting tool upkeep costs by 66%.*

4 Production increased 50,000
units per year on one machine,
due to elimination of downtime.*

The examples cited are just a few
taken at random from our files.
Texaco Lubrication Engineers
serve all fields of industry . . . in
plants, large and small, in all parts
of the country. Let one of them
show you how to make savings in
your plants.

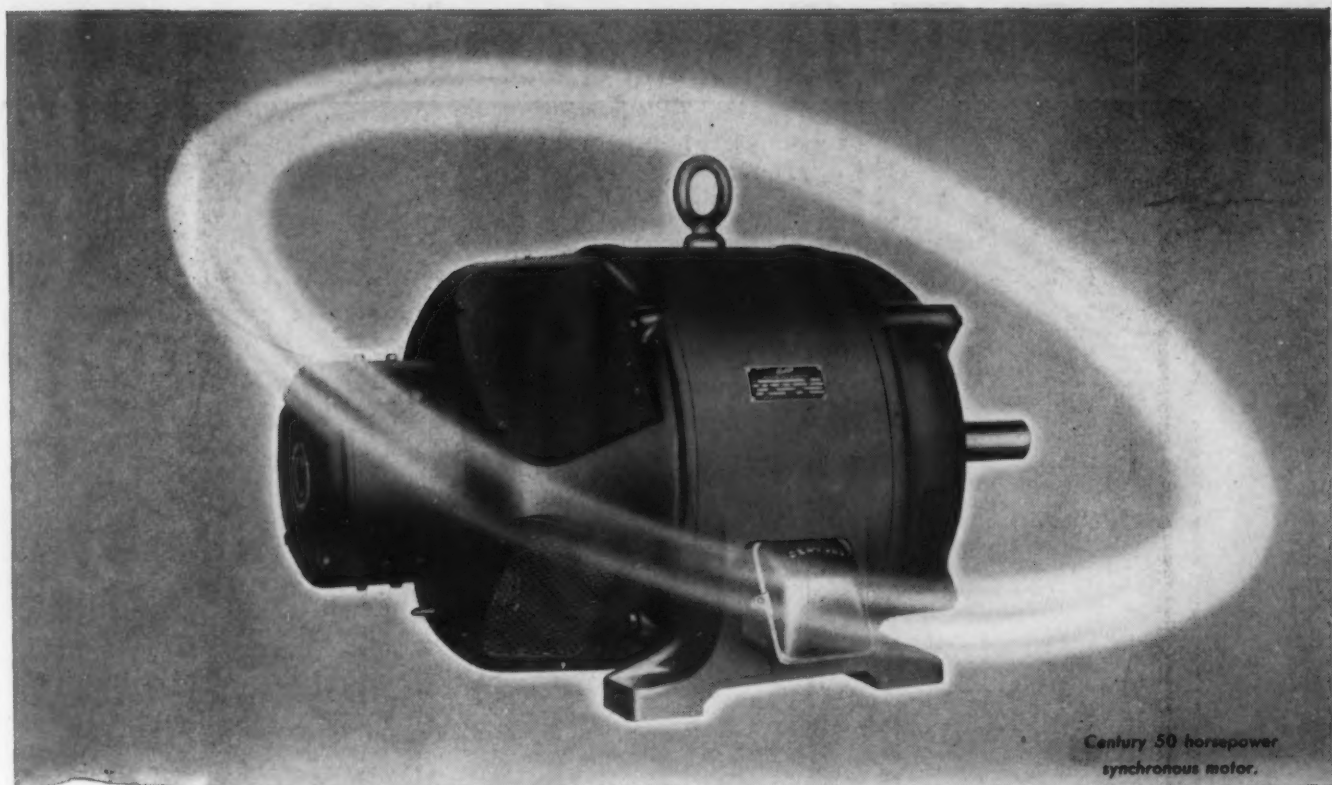
Just call the nearest of the more
than 2,000 Texaco Wholesale Dis-
tributing Plants in the 48 States,
or write The Texas Company, 135
E. 42nd St., New York 17, N. Y.

*Name on request



**TEXACO Lubricants, Fuels and
Lubrication Engineering Service**

TUNE IN . . . TEXACO STAR THEATER starring MILTON BERLE on television every Tuesday night. See newspaper for time and station.



Century 50 horsepower
synchronous motor.

Century Synchronous Motors for Power Factor Correction

REDUCE MAXIMUM CURRENT DEMAND

Century high speed synchronous motors are available in sizes from 25 to 250 horsepower, unity power factor—and 20 to 200 horsepower, .8 power factor—to meet the requirements of power factor correction.

These motors are available without exciters when another source of direct current is available for excitation.

Century Synchronous motors are especially suitable for such applications as blowers, fans, centrifugal pumps, and similar equipment that operates continuously at uniform load.

The complete line of Century motors includes a wide range of types and kinds from 1/6 to 400 horsepower—single phase, polyphase and direct current.

**SPECIFY
CENTURY MOTORS
FOR ALL YOUR
ELECTRIC POWER
REQUIREMENTS**

CENTURY ELECTRIC CO., 1806 Pine St., St. Louis 3, Missouri
Offices and Stock Points in Principal Cities

-668



ALTERNATING CURRENT MOTORS POLYPHASE

Squirrel Cage Induction—1/6 to 400 H.P.
Wound Rotor Motors—1 to 400 H.P.
Synchronous Motors—20 to 250 H.P.

SINGLE PHASE

Split Phase Induction—1/6, 1/4, 1/3 H.P.
Capacitor—1/6 to 20 H.P.
Repulsion Start, Brush Lifting, Induction—
1/2 to 20 H.P.

DIRECT CURRENT MOTORS 1/6 to 300 H.P.

GENERATORS

AC, .63 to 250 KVA
DC, .75 to 200 KW

GEAR MOTORS

1/8 to 1-1/2 H.P.

MOTOR GENERATOR SETS

AC to DC, AC to AC
DC to DC, DC to AC

Open Protected, Splash Proof, Totally Enclosed
Fan Cooled, Explosion Proof.

Ball Bearing motors are factory lubricated for several years' normal service. Bearing housing construction permits easy re-lubrication when unusual service demands it.

PURCHASING published monthly, by PEEAYE, INC., subsidiary CONOVER-MAST PUBLICATIONS, INC. Publication Office, Orange, Conn. Editorial and Executive Offices, 205 East 42nd St., New York 17, N. Y. Entered as second class matter August 8, 1942, at the Post Office in Orange, Conn., under the act of March 3, 1879. Subscription rates: United States, U.S. Possessions and Canada: \$4 per year, \$6 for two years; elsewhere \$6 per year, \$10 for two years. Single copies 50c. Volume XXVIII, No. 6.

B.F. Goodrich



B. F. Goodrich Burstproof steam hose has new cover 100% tougher

Ends hazard of scalding and injury from bursting hose wall

THIS is the safest, strongest hose in steam service. Completely burstproof. Steam or steam pressure cannot burst the hose wall. It's B. F. Goodrich Burstproof steam hose, being used here to send steam through the pipes in a tank car to make the liquid flow out easier, quicker. Here's why the operator in the picture is safe, and why this hose will give longer service:

100% tougher cover—On jobs where ordinary steam-hose covers harden and crack, B. F. Goodrich Burstproof will last longer than any other steam hose you've ever used. BFG engineers have developed a rubber cover 100% more resistant to heat, hardening,

cracking. Also resists weathering. Exterior wire-winding can be eliminated—with a 30% reduction in over-all hose weight. Sparkproof, for use around petroleum.

Tube beats the heat—Won't deteriorate from constant high temperatures. Made with B. F. Goodrich Agerite, an anti-oxidant that keeps rubber live and elastic.

Steel wire won't char—No cotton fabric in B. F. Goodrich Burstproof steam hose. High tensile steel wire takes the place of fabric plies which in ordinary hose, burn, char, break. Multiple wire strands give more strength than any other type of rein-

forcement. Braid openings permit tube to "rivet" itself to other layers of rubber. This greater strength, this increased safety are among the improvements of BFG research.

B. F. Goodrich Burstproof hose is recommended for saturated steam pressures up to 200 lb. per sq. in.; superheated steam up to 388°F. The BFG distributor near you has further information and will be glad to help you make a trial installation. Call him. *The B. F. Goodrich Company, Industrial and General Products Division, Akron, Ohio.*

*Burstproof
Steam Hose* BY
B.F. Goodrich



high strength-to-weight ratio
does the job

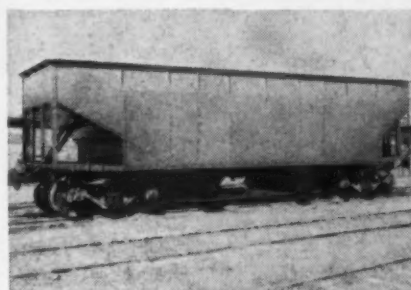
Inland HI-STEEL

High strength, low alloy Inland HI-STEEL has nearly twice the yield strength of ordinary structural-grade carbon steel! It permits weight reductions up to 25% of total unit weight and at the same time affords greater resistance to abrasion and atmospheric corrosion.



MORE PAYLOAD!

Result: Operating costs of mobile equipment fabricated of Inland HI-STEEL are greatly reduced.



LIGHTER!

Result: Payloads of mobile equipment fabricated of Inland HI-STEEL can be greatly increased.



NO STRENGTH LOSS!

Result: Higher strength permits use of lighter sections. Three tons of HI-STEEL will usually produce the same number of units requiring four tons of ordinary structural-grade carbon steel.

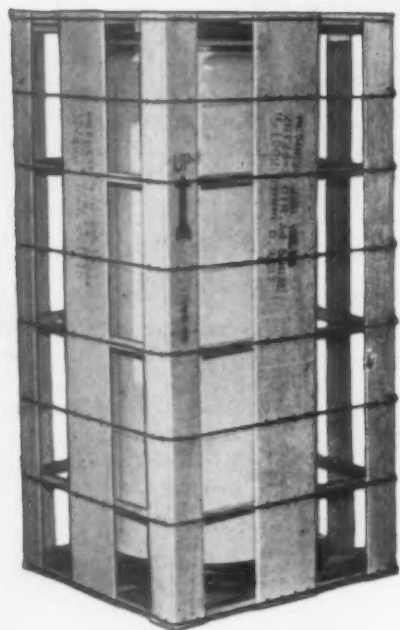
And Inland HI-STEEL can be worked either hot or cold with little or no change in standard shop practice.



INLAND STEEL COMPANY, Dept. P60, 38 S. Dearborn Street, Chicago, Illinois
OTHER PRODUCTS: BARS • STRUCTURALS • PLATES • SHEETS • STRIP •
TIN PLATE • FLOOR PLATE • PILING • RAILS • TRACK ACCESSORIES.

Sales Offices: Chicago, Davenport, Detroit, Indianapolis, Kansas
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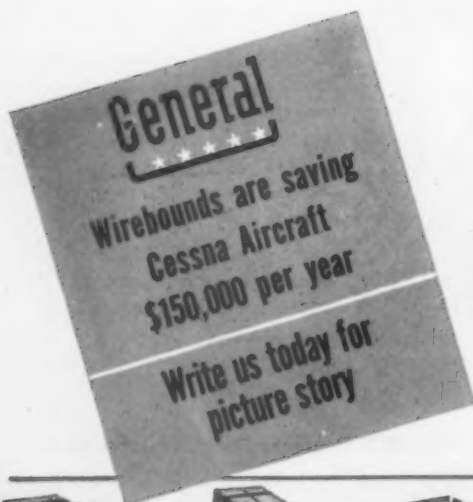
General Boxes...



for WATER HEATERS or WRENCHES

or hundreds of other products

General boxes protect the product . . . cut down loss and dissatisfaction. They are lightweight yet extra strong! They are easily and quickly assembled, providing "the best of protection" for hundreds of American products. We will be glad to help design a more economical, a more efficient container for your product. Write us today for complete information.



General

BOX COMPANY

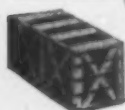
engineered shipping containers

GENERAL OFFICES:

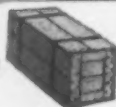
48 W. Illinois Street, Chicago 10, Ill.

DISTRICT OFFICES AND PLANTS: Brooklyn, Cincinnati, Detroit, East St. Louis, Kansas City, Louisville, Milwaukee, Meridian, Sheboygan, Winchendon.

Continental Box Company, Inc.: Houston, Dallas.



General Wirebound Crate



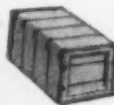
General Nailed Box



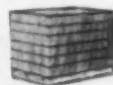
General Corrugated Box



General Cleated Corrugated Container



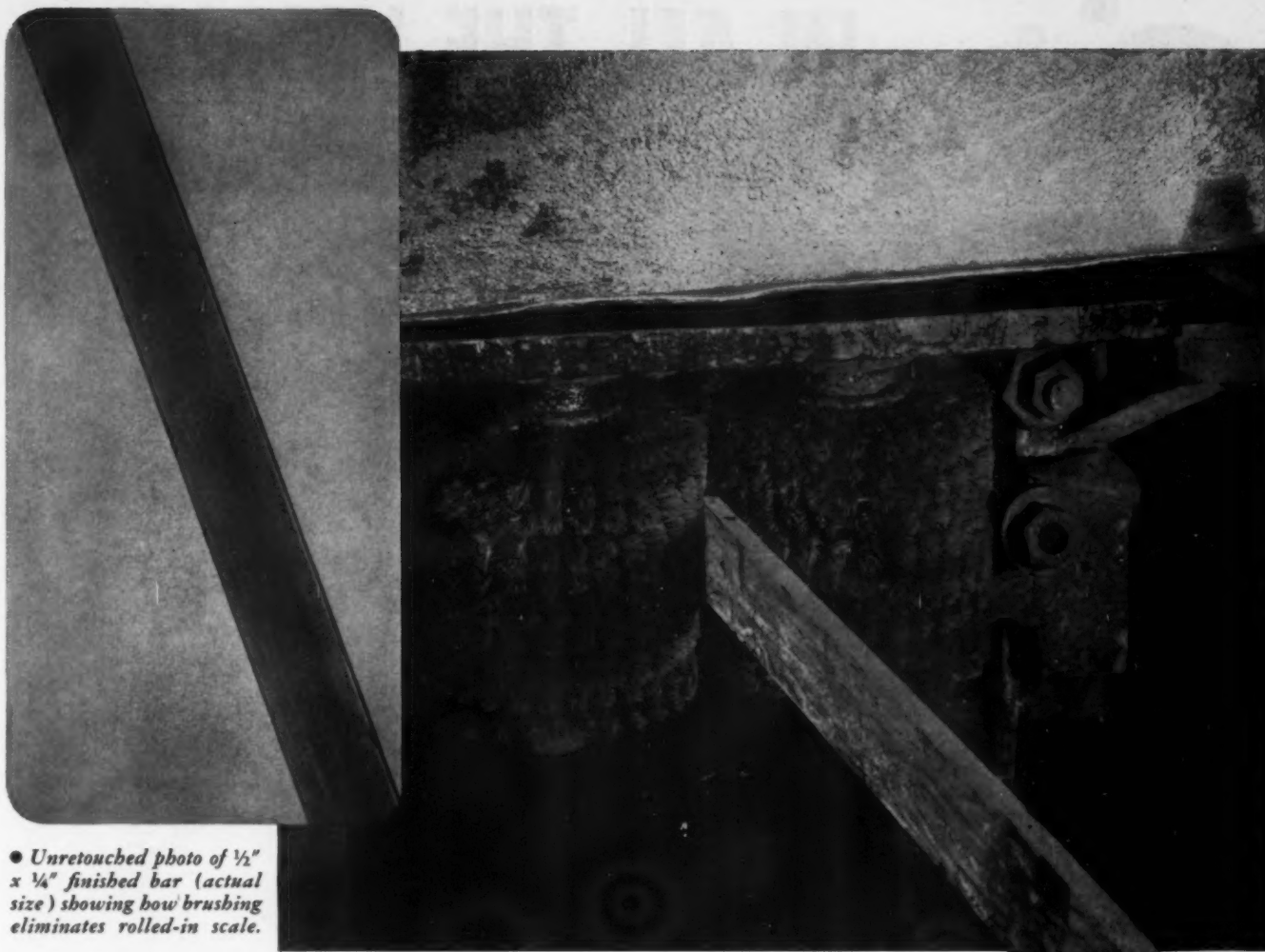
General All-Bound Box



General Lift Pallet and Pallet Box



General Watkins-Type Box



● Unretouched photo of 1/2" x 1/4" finished bar (actual size) showing how brushing eliminates rolled-in scale.

Red-hot tip on nipping steel blemishes in the bud

SECONDARY SCALE . . . the hard material that gouges its way into steel bars during rolling . . . has been eliminated by Osborn Brushing.

Progressive steel mills, intent on improving the finish of bar stock, are removing this hard scale by brushing the bars during rolling . . . at speeds up to 1,000 feet per minute . . . with Osborn Power Driven Disc-Center* Wire Wheel Brushes.

Red hot steel coming through the mill shoots through a twin

*Trademark

set of counter-rotating Osborn brushes.

This is another example where an Osborn Brushing Analyst has worked with a progressive manufacturer on problems of cleaning, finishing or polishing to improve products and cut costs. His services, backed by Osborn's extensive technical facilities, are yours for the asking. He will gladly show you how *you*, too, can benefit from new Osborn brushing techniques. Ask today for an **OBA!** The Osborn Manufacturing Com-

pany, Dept. 292, 5401 Hamilton Avenue, Cleveland 14, Ohio.

YOU CAN IMPROVE FINISH AND CUT COSTS BY BRUSHING



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RECOGNIZED EVERYWHERE FOR

THOROUGH APPLICATION ENGINEERING



IN ALL THE WORLD... NO WRENCH LIKE



its individually **REGISTERED**
completely **GUARANTEED!**

Special MONEY-BACK TRIAL OFFER!

Buy one "Registered" Roxco and use it for your toughest jobs. If you don't agree it stands up better... is handier, faster to use... is a bigger value than any pipe wrench you've ever used... return that one trial Roxco direct to us (not the seller), within sixty days with a note of price paid and reason for returning. We will refund your money. This get-acquainted offer good until Dec. 31, 1950. Trimont Mfg. Co., Roxbury, Mass.

**ENGINEERED BY STRESS
ANALYSIS TO ASSURE
HEAVY DUTY STRENGTH
WITHOUT USELESS WEIGHT**

Now you need not accept useless, fatiguing weight in order to get a dependably strong wrench. Through stress analysis of every inch, the new Roxco was designed to put extra metal where heavy stresses come. And, to take out metal where it does not count.

The result is not only the handiest pipe wrench a man ever put to work, but also a wrench so strong that it exceeds, by a good margin, Federal Spec's for Heavy Duty Pipe Wrenches, Type II, GGG-W-651a.

So superior is this new wrench... so carefully quality-controlled... that every Roxco is individually Registered by number. And every part is guaranteed against breakage in any normal heavy duty use! The nine points below show why any wrench buyer and user will want the lighter, easier-to-work-with Roxco to boost efficiency... reduce tool costs. Order Roxco, now. Or send for folder and names of distributors.

1. Extra Strength Based on Stress Analysis: Extra metal at critical points provides higher resistance to failure. Protects work and worker. Withstands unusual stress in "side pull".

2. Lighter Weight Achieved: Stress analysis also showed where useless metal could be eliminated to produce a lighter, handier wrench.

3. Uniformity of Jaw Hardness and Strength: Both movable and insert jaws are of drop-forged alloy steel. Teeth are hardened by automatically-timed, localized induction process at wear points, yet the tough core of jaws is retained for strength.

4. Reinforcing Shoulder Behind Insert Jaw resists any unusual stress. Assures long, trouble-free service.

5. Rapid Ratcheting Action: New, simplified cushion

action replaces complicated spring. With Roxco tooth design, it prevents seizure on pipe and permits fast ratcheting action — as fast as user can move his hand. Accurate fit of assembled parts eliminates lost motion — speeds jobs.

6. Comfort-Shaped, Palm-Fitting Handle: New wide handle design is more comfortable to use — makes work easier, cuts worker fatigue.

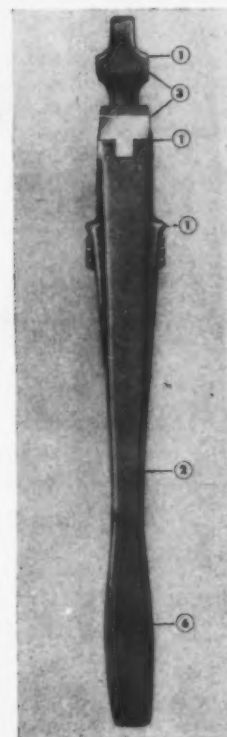
7. Reinforced Housing embodies a hammer face to break cast fittings.

8. Handy, Accurate Pipe Scale permits quick adjustment to desired size.

Special Metallurgical Formula: Roxco Metal, combined with scientific heat treating, means superior strength in housing and handle.



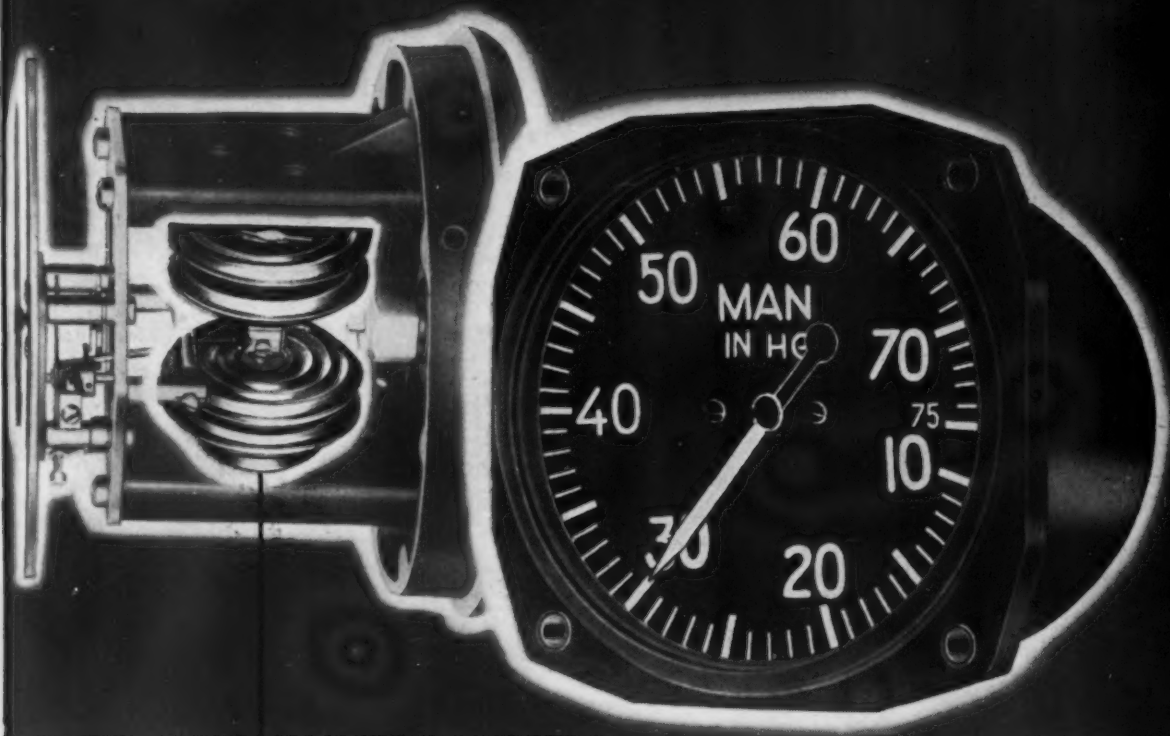
See dark Hardened area



TRIMO-ALLOY WRENCH
... Roxco's only Rival ... is an all alloy-steel heavy duty pipe wrench. Different in design, but has power comparable to Roxco.

TRIMONT MANUFACTURING CO. Division of Aetna Industrial Corporation, 55 Amory Street, Roxbury 19, Mass. Makers of Wrenches, Pipe Cutters, Vises and Other Trimo Time-Tested Tools.

THIS TIRELESS METAL THAT KEEPS GAUGES HONEST MAY REVOLUTIONIZE YOUR PRODUCTS



United States Gauge, world's largest manufacturer of gauges, uses Riverside Beryllium Copper for both pressure and vacuum diaphragm capsules of its absolute pressure instruments.

There's no place for muscle-bound metals in the diaphragms of an absolute pressure gauge. Constantly *sensing and reporting* changes in manifold pressure of internal combustion engines, diaphragms must be super-sensitive yet rugged enough to withstand flexure.

Beryllium copper, one of the alloys made by Riverside, is the only metal possessing the necessary physical properties that will do the job economically. In this application beryllium copper is "cold worked" to a tensile of 80,000 pounds, and formed *while being heat treated* to a tensile of about 210,000 pounds. Beryllium copper diaphragms easily take the initial stresses caused by evacuating air and the ever changing stresses of flexure.

Because of these advantages—plus corrosion resistance, wear resistance, formability and superior electrical and thermal qualities—Riverside Beryllium Copper finds wide use in gauges, springs, thermostats, bearings, gears, valve sleeves and seats. This versatile alloy—or one of the other Riverside metals, *Phosphor Bronze*, *Nickel Silver* or *Cupro Nickel*—may be the specific answer to your alloy problem. We produce these alloys in standard or special grades to meet your requirements. And we'll be glad to work with your technicians in examining and solving your particular puzzle.



If alloys are giving you trouble—in processing or in service—send the case history to Riverside. Also, be sure to ask for our new pocket-size Alloy Handbook. It's invaluable as a handy reference and a guide to alloy specification—and it's yours without obligation.



RIVERSIDE ALLOYS

Alloys developed by research, proved by use

phosphor
bronze
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nickel silver
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cupro nickel
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beryllium
copper

THE RIVERSIDE METAL COMPANY

Riverside, New Jersey

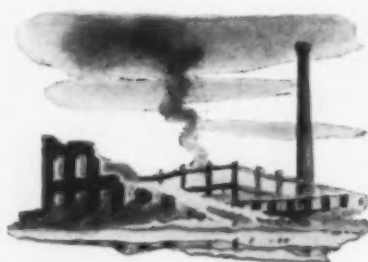
Newark, N. J. • Cleveland, Ohio • Chicago, Ill.
Hartford, Conn. • Rochester, N.Y. • Detroit, Mich.

Export Agent. International Brass & Copper Co., Inc., 52 Broadway, New York City

If you Don't Have Money to Burn YOU NEED GRINNELL PROTECTION!



FIRE RAVAGES almost a billion dollars worth of property in this country each year. And competent authorities agree that *the best protection against fire is an automatic sprinkler system.*



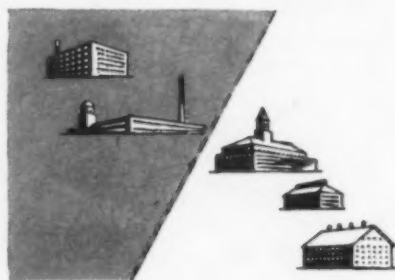
"FIREPROOF" CONSTRUCTION is not enough to protect your business property. All too often "fireproof" buildings merely serve as stoves for flammable furnishings, equipment and stored materials.



BURNED OUT BUSINESSES usually mean burned out records... ledgers, sales records, documents, blueprints... vital information lost forever. Could your business survive such a blow?



INSURANCE INDEMNITY seldom covers reconstruction costs today. No indemnity check can compensate for the loss of customers, time, profits and skilled personnel.



2 OUT OF 5 burned-out businesses never resume operation, regardless of insurance. Grinnell Sprinklers protect you from this catastrophe, with automatic certainty.



REDUCTIONS IN INSURANCE premiums frequently pay for Grinnell Protection in a relatively few years. You're paying for Grinnell Protection... Why not have it?

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Needless loss of life and property can be prevented by checking fire at its source, whenever and wherever it starts, with Grinnell Automatic Sprinkler Systems. For more than seventy years, practically 100% of fires starting in buildings protected by Grinnell Automatic Sprinkler Systems have been extinguished before doing material damage. Owners of more than 70 billion dollars worth of property rely on Grinnell. Why don't you? Write for information.

Grinnell Company, Inc., executive offices, Providence, R. I.
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GRINNELL

FIRE PROTECTION SYSTEMS

LINK-BELT *Precision Steel* ROLLER CHAIN

**GIVES POSITIVE
POWER TRANSMISSION
PLUS LONG LIFE**

Performance on every type of equipment and in every industry proves the high quality of Link-Belt Precision Steel Roller Chain, incorporating the knowledge and experience of the world's largest manufacturer of chain.

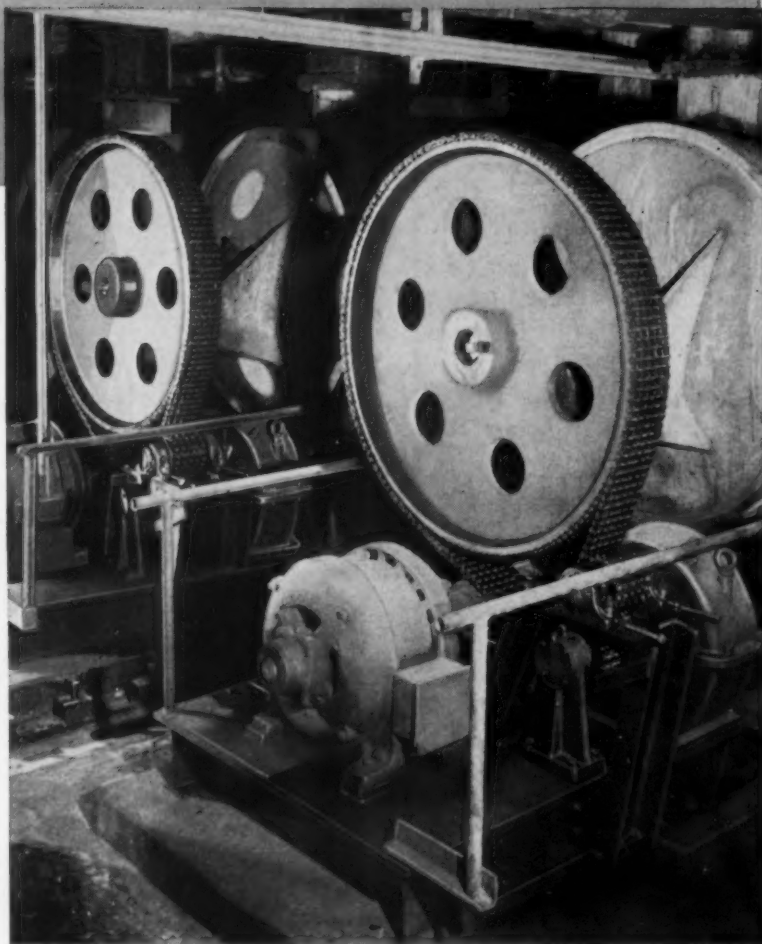
Positive transmission of power, efficient conveying, compactness, wide flexibility of arrangement, ability to absorb shock, are characteristics of roller chain which are enhanced by the precision manufacturing methods and metallurgical control followed in the huge Link-Belt chain plant.

Link-Belt Precision Steel Roller Chain runs slack on long or short centers, minimizing shaft bearing pressure, and operates at highest efficiency, since there is no possibility of slip. A number of shafts, turning in either direction, can be grouped in a single drive. The flexibility of each joint supplies a general cushioning effect, absorbing rather than transmitting shock from one shaft to another.

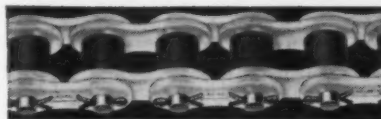
Link-Belt Precision Steel Roller Chain and sprockets are available immediately, in single or multiple widths, in $\frac{3}{8}$ " to $2\frac{1}{2}$ " pitch. Also with various types of attachments as well as the Universal Carrier, Flat-top, double pitch and horizontal plane bend types of chain. Made to manufacturers' (A.S.A.) standards. Send for Data Book No. 1957-A.

LINK-BELT COMPANY

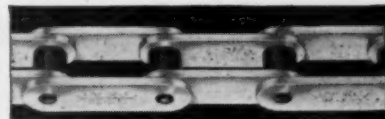
Chicago 9, Indianapolis 6, Philadelphia 40, Atlanta, Houston 1, Minneapolis 5, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8. Offices, Factory Branch Stores and Distributors in Principal Cities. 11,634-C



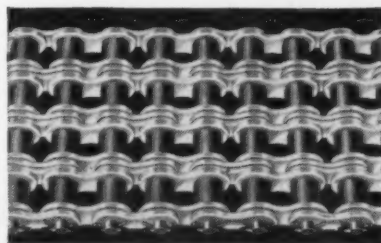
Two quintuple width Link-Belt Roller Chain and Herringbone Gear Drives operating tankage dryers. These drives eliminated noisy, troublesome arrangements of bulky gears and spur pinions.



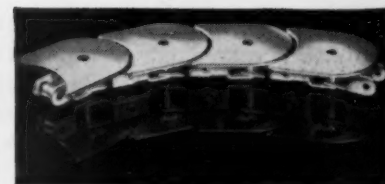
Single strand standard pitch chain.



Double pitch roller conveyor chain.



Multiple strand standard pitch chain.



Universal Carrier chain, flexes in 2 planes.



Ewart Plant — Link-Belt Company — Indianapolis, Ind.

World's largest makers of Chains for Power Transmission and Conveying

LINK-BELT
ROLLER CHAINS & SPROCKETS

ANILINE



valuable chemical "handy man"

Aniline reacts with many chemicals to form many products. Used in anti-aging compounds in rubber manufacture, aniline gives rubber goods greater stamina and longer life. Dyestuffs made from aniline are used to color and print the draperies that brighten your home. Even the snapshots in your family album were developed in a solution containing an aniline derivative.

Aniline's versatility makes it useful for numerous other applications, ranging from explosives to pain relieving pharmaceuticals. The textile and leather industries also have taken advantage of aniline's ability to react with other chemicals.

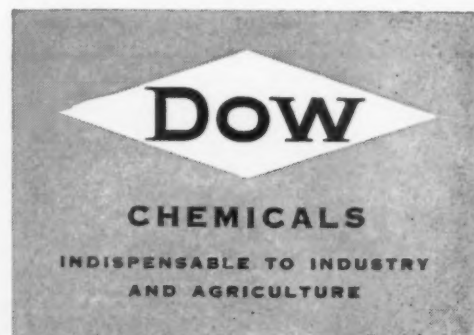
Dow is a leading producer of fine quality aniline. Our wide-spread distribution facilities make it easy for you to turn to Dow as a *dependable* source for your aniline needs. For further information and technical assistance, write us here at Midland.

THE DOW CHEMICAL COMPANY

MIDLAND, MICHIGAN



DOW ALSO PRODUCES over 600 other chemicals including: caustic soda, phenol, monochlorobenzene, hydrochloric acid, propylene oxide, epsom salt, ethylene oxide, and other basic, industrial, pharmaceutical and agricultural chemicals.



PURCHASING PREVIEWS

A WASHINGTON REPORT FOR PURCHASING AGENTS

June 1, 1950.

BUYING IS UP AND BUSINESS BOOM CONTINUES

Buoyant business conditions have undermined the Government's expressed concern over unemployment.

Economic factors are currently in sharp contrast to those of last summer. In mid-1949, conditions were just beginning to pick up, while mid-summer this year comes in the midst of a boom that started fully six months ago.

The most startling development has been the boom in housing construction, with speculative builders in practically all sections of the country building and selling a record volume of houses. Simultaneous with an increased emphasis on construction of low-cost homes, there has been a revival of buyer interest in larger and higher priced houses.

The housing boom creates a tremendous secondary market for appliances, household goods, furniture and furnishings. This spurt has reflected in the production rate for all these industries, and here again the activity in these industries is in sharp contrast to the early summer slump in 1949.

Some of the acceleration in buying stems from the GI insurance dividend, but this in itself could not touch off the high level activity in construction.

A major factor in stimulating construction activity has been the general acceptance of the current cost structure as being more or less permanent. There is little talk of substantial price adjustment. The general forecasts that construction costs might back down to somewhere around 25% above the prewar construction price levels have been abandoned.

It is now believed that while there may be some price adjustments, they are not likely for the immediate future, and the long-range prospect is for only moderate price reductions—not deep slashes in price tags.

MATERIALS COSTS ON THE UPGRADE

The reaction currently on materials prices has been on the up scale rather than down.

The price movement has been highly selective, with producers seeking to pass their higher cost factors along to the consumer only in such items where consumer price resistance is least vehement. Producers are maintaining a general policy of holding the price levels as best they can. Nevertheless costs have been inching up.

The higher steel prices are being written into the fabricating price structure. In some cases, fabricators have been able to absorb the higher prices; in others, the price increase is passed along to the consumer.

There has been improved productivity in some industries—notably the synthetic fiber textile industry, where a satisfactory adjustment has been worked out in both output and price, which in turn has reflected in a sustained market for this type of textiles.

In many industries, however, the improvements in productivity have been less spectacular—difficult to measure, and permitting little or no leeway in prices.

SURPLUSES NOT ACCUMULATING

A significant factor in materials and product markets has been the fact that surpluses have not developed.

In materials, the program of stockpiling strategic and critical materials has had the effect of absorbing surpluses, and also of firming up prices in instances where there has been a tendency to sag.

In manufactured products, manufacturers have been hewing to a policy of gearing their production close to consumption levels, and inventories have not accumulated to a point where there may be distressed stocks of merchandise.

Better piping for every job ...from one complete line...CRANE

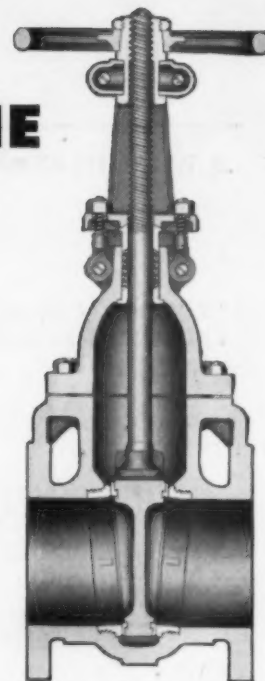
BUILT STRONGER TO LAST LONGER

That's one reason Crane 125-Pound Iron Body Wedge Gates find such wide application. Improved elliptical body design with uniform wall thickness eliminates useless weight; provides high resistance to pressure loads. Tie-ribs between end and bonnet flanges increase resistance to line strains.

Check these other Crane design features. Greater flow capacity: straight-through ports assure streamline flow. Minimum maintenance: long disc guides reduce disc drag and wear on seating surfaces. Deep stuffing box—more packing—lengthens packing life. Easy operation: uniform pressure on packing eliminates stem binding. Flexible T-head disc-stem connection prevents side strain on stem.

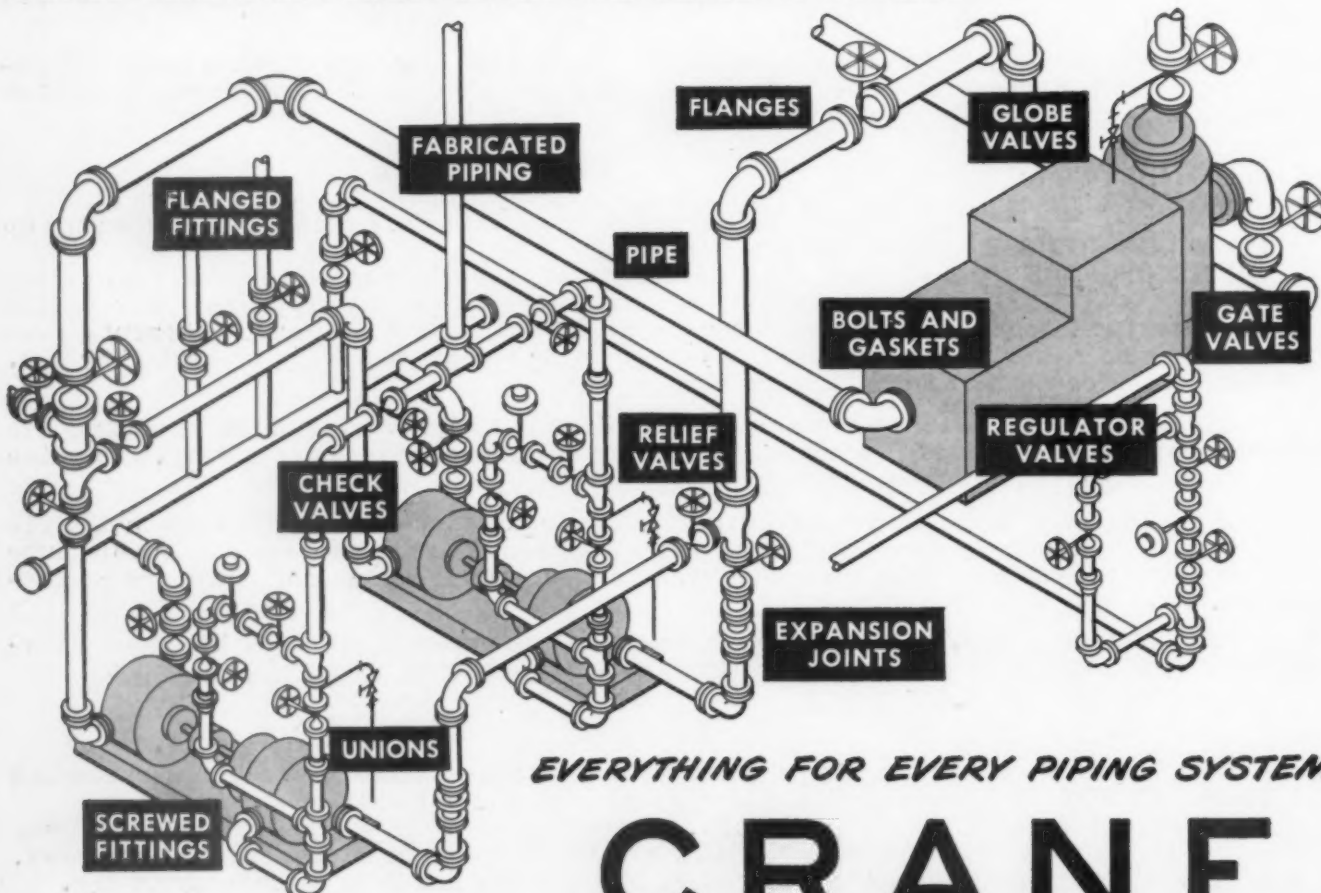
Available in patterns for every need; non-rising stem, O. S. & Y., Quick-Opening and Underwriters'. Flanged or screwed ends. See your No. 49 Crane Catalog.

CRANE CO., 836 S. Michigan Ave., Chicago 5, Ill.
Branches and Wholesalers Serving All Industrial Areas



No. 465 1/2, Flanged Gate
Working Pressures: up to
125 pounds steam; 200
pounds water, oil, gas.
Sizes: 2 to 48-inch.

**THIS BOILER FEED SYSTEM, FOR EXAMPLE,
CAN BE COMPLETELY EQUIPPED ON ONE ORDER TO CRANE**



EVERYTHING FOR EVERY PIPING SYSTEM

CRANE

VALVES • FITTINGS • PIPE • PLUMBING AND HEATING

▲ PURCHASING PREVIEWS

continued

DEFENSE PROGRAM MEANS MORE BILLIONS TO BE SPENT

The Government stockpiling program is possibly one of the lesser of the Government supports in the current market for materials and manufactured products.

The defense program—especially the most recent tactical decision to rearm Western Europe—has major implications of increased military expenditures.

Further, while there is considerable talk about economy in Government spending, Congress has shown little disposition toward slashes in the overall Federal budget.

Result is that deficit spending continues at a substantial rate, and if the estimates of cost in rearming Europe are even partially accurate, this program will mean expenditure of additional billions of dollars.

ECA DEVELOPMENTS

The Marshall Plan program has already involved the purchase of roughly \$9 billion worth of materials, supplies, and equipment for the various participating countries of Western Europe.

A substantial quantity of foods is still being shipped to Europe—grains, fats and oils, and sugar. Also being shipped in considerable quantity are petroleum products, cotton, chemicals, non-ferrous metals and products, metallic ores and concentrates, alcohol, and hides and leather products.

Currently, machinery and equipment make up about 30% of the dollar volume.

WHAT IS HAPPENING TO BRITISH INDUS- TRIAL RECOVERY?

British developments in terms of industrial recovery have been confusing. Production levels in Britain are reported as highly satisfactory, and British producers claim that quality has been good.

At the same time, the considerable stream of American technical advisers to Britain—and the teams of observers from Britain to this country to observe and learn from our methods—would make it appear that British industry is both backward and incompetent.

British producers feel that they have a number of consumer products which they could market successfully in the U. S. in competition with American products, but as a matter of national policy they are avoiding aggressive competitive selling.

WAR MOBILIZATION PLANNING TO BE INTENSIFIED

Transfer of W. Stuart Symington from his post as Secretary of the Air Force to the National Security Resources Board indicates increased Government emphasis on war mobilization planning.

The NSRB has been, in large measure, a political football for the last 18 months, with little executive direction. Symington is an energetic administrator with a good industrial background, and his appointment to the board will reactivate peacetime planning for possible war emergency.

Approach of the NSRB will be the consideration of policies, programs and methods for meeting wartime deficits in specific resources such as materials, manpower and transportation; consideration of programs for allocation of materials, limitations on use and use of substitute materials in the event of wartime emergency; and finally, wartime economic controls, such as price, rationing and distribution controls.

A fair summary of the purpose of the NSRB would be the planning of functions which a wartime War Production Board, OPA and Office of Defense Transportation would have to undertake.

INDUSTRY UNDER- TAKES EXTENSIVE EXPLORATIONS

Steel and oil industries have found a strong countering argument against the inroads of Government regulation and control.

It is readily apparent that the Government—faced with the need of developing outside sources of iron ore—would not have taken the spectacular risks required to discover and develop the rich new ore finds in Venezuela and Labrador, as did the steel industry.

The petroleum industry is estimated to have spent a billion and a half dollars last year in drilling. The industry brought in 25,000 producing wells—but there were also 13,000 dry holes.

A petroleum industry spokesman, in a recent comment, pointed out that such a program of exploration would be impossible under Government control. He raised the point: "What Government official could explain away 13,000 dry holes?"



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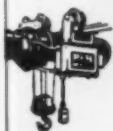
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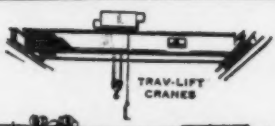
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—When Writing to Manufacturers Direct, Please Mention PURCHASING Magazine.—

☐ **1. VIBRATION ISOLATION**—Characteristics of various types of vibration isolation media — springs, rubber, and cork materials—are given in Bulletin G-102. Selector chart details recommended material for specific problem. The Korfund Co., Inc., 48-35-T 32nd Place, Long Island City 1, N. Y.

☐ **2. MILLING MACHINES**—New pain and universal milling machines, featuring a high degree of exhibility for precision general purpose and toolroom milling, are described and illustrated in 12-page booklet. The Cincinnati Milling Machine Co., Cincinnati 9, O.

☐ **3. COIL WEIGHT CALCULATOR**—Calculator figures exact weight of coil of steel, faster than when using slide rule and hand-book. Permits selection of correct size reel for specific group of coils. F. J. Littell Machine Co., 4179A Ravenswood Ave., Chicago 13, Ill.

☐ **4. CENTRIFUGAL PUMPS**—Catalog No. F-249 details non-clogging centrifugal pumps designed to pass liquids containing solids from 2 to 10 inches in diameter. Complete selection tables included. Economy Pumps, Inc., Hamilton, O.

☐ **5. FLOORS**—Problems of resurfacing service floors of various types and materials available to solve them are discussed in a folder issued by United Laboratories, Inc., 16801 Euclid Ave., Cleveland 12, O.

☐ **6. COUNTERS**—Twenty models of heavy-duty counters—standard tripped types, motor driven types, ticket printing types, automatic stopping counters and explosion-proof units — are described and illustrated in Bulletin No. 3149. Richardson Scale Co., Clifton, N. J.

☐ **7. PLASTIC TUBING**—Flexible plastic tubing, its uses, properties and chemical resistant characteristics is subject of Bulletin T-77 which answers most any question that could be asked about Tygon plastic tubing. U. S. Stoneware, Akron 9, Ohio.

☐ **8. AUTO BRAKE PARTS**—One-point reference to brake parts and lining, covering popular models of passenger cars and trucks,

features Lockheed brake parts, fluid and CoMaX brake lining catalog AU-500 just released by Wagner Electric Corp., 6400 Plymouth Ave., St. Louis 14, Mo.

☐ **9. SPEED REDUCER**—Continuous tooth herringbone gear reduction gears, ratio range 2 to 360 to 1, capacities up to 3500 hp, are subject of catalog 40-B; available in 65 sizes. D. O. James Gear Mfg. Co., 1140 W. Monroe St., Chicago, Ill

☐ **10. ALUMINUM CLAPBOARD SIDING**—Aluminum clapboard siding is detailed in 16-page AIA file. Drawings show interior and exterior corner application, and general construction information and specifications. Kaiser Aluminum & Chemical Sales Inc., 1924 Broadway, Oakland 12, Calif.

☐ **11. MINIATURE BEARINGS**—12-page catalog No. 50 describes full line of standard and special ball bearings, claimed to be the only fully ground miniature bearings made in this country, including the miniature Conrad (retainer type). Outside diameters $\frac{1}{8}$ " to $\frac{3}{8}$ ". New Hampshire Ball Bearings, Inc., Peterborough 1, N. H.

☐ **12. SHAPERS**—New Catalog N-5 details line of shapers, and reviews some of the many applications of this "handy man of industry". Pictures illustrating applications, standard features and

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All listings include names and addresses of manufacturers.

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New Products Section
Pages 208-234

(Please turn to page 20)

(Continued from page 19)
special equipment are of special interest. The Cincinnati Shaper Co., Cincinnati 25, Ohio.

☐ **13. WELDING FITTINGS**—Precision process seamless welding fittings featuring uniform-thickness walls; smooth inner surfaces; true angles — radii — circularity; strength with minimum eight, etc., are subject of catalog offered by Globe Steel Tubes Co., Milwaukee 4, Wis.

☐ **14. PAINT BRUSHES**—Booklet on how to reduce paint brush costs through use of pure bristle brushes—or 100% nylon on rough surfaces—is available from Industrial Divn., The Fuller Brush Co., 3554 Main St., Hartford 2, Conn.

☐ **15. COAL DUST CONTROL**—"For 1¢ a ton—complete freedom from coal dust . . . for another 1¢—dustless ashes" is the theme of a folder on coal dust control through "wet water" spraying issued by Aquadyne Corp., 220 E. 42nd St., New York 17, N. Y.

☐ **16. DIE CASTING MACHINE**—New, small rugged universal die-casting machine available either as a gooseneck or cold chamber machine is detailed in bulletin offered by The Cleveland Automatic Machine Co., Cincinnati 12, O.

☐ **17. SHEET PACKING**—Publication 5000 lists specifications and outlines uses of different kinds of sheet packing for handling liquids, gases and abrasives manufactured by The B. F. Goodrich Co., Akron, O.

☐ **18. ACID-PROOF DRAIN PIPE**—Price List H-2 illustrates acid proof equipment available for handling corrosive wastes from chemical laboratories, chemical plants, plating rooms, steel mills, etc. The Duriron Co., Inc., Dayton 1, O.

☐ **19. REACTION KETTLES**—Bulletin 680 details "R" series of high-pressure, glass-lined, steel reaction kettles, ASME code built, all welded, one piece construction. The Plaudler Co., 999 West Ave., Rochester 3, N. Y.

☐ **20. MATERIALS HANDLING**—Pak-Loader fork truck system of palletless handling of sacks, car-

LATEST TRADE LITERATURE

(This is Page 20)

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tons, bails, and drums is described in a 4-page bulletin. The system, comprising fork trucks equipped with pusher mechanisms and several steel plates per truck, saves storage space, manual loading, demurrage, and handling costs. The Yale & Towne Mfg. Co., Philadelphia Divn., Philadelphia 15, Pa.

☐ **21. SAFETY SWITCH**—The HCL—High Capacity Interrupter—an all new Type A safety switch for modern high-capacity distribution systems is the subject of Bulletin TEC-10, issued by The Trumbull Electric Mfg. Co., Plainville, Conn.

☐ **22. PRECISION TOOLS**—Many new precision tools—micrometers, comparators, indicators, gages—are shown in a booklet just issued by The L. S. Starrett Co., Athol, Mass.

☐ **23. FASTENINGS**—Case histories describing cost reductions provided by Speed Nut products are available in a new booklet offered by Tinnerman Products, Inc., Cleveland, O.

☐ **24. TRANSFORMERS**—Form No. 1503 describes Powerstat variable transformer types 116 and 216, redesigned for better performance and stronger construction. Various ratings are tabulated, and connection arrangements are detailed. The Superior Electric Co., Bristol, Conn.

☐ **25. WIRE CLOTH**—64-page handbook contains complete and definite information on a wide range of wire cloth products. There is a glossary of terms; instructions

on how to compute mesh, space, open area; illustrations of weaves; a section on selecting, ordering and testing. Newark Wire Cloth Co., 351 Verona Ave., Newark 4, N. J.

☐ **26. MOLDING POWDERS**—A complete series of heat-resistant, medium-flow, and general-purpose Plexiglas acrylic plastic molding powders is covered in a new 16-page illustrated booklet. Included is a detailed table of properties for the company's various injection and compression molding powders. Rohm & Haas Co., Washington Sq., Philadelphia 5, Pa.

☐ **27. SHEAR KNIVES**—Shear knife handbook outlines current research and development of new knives; gives grade listing of company's products; offers recommendations for selecting the correct grade knife, and tips to facilitate ordering. Heppenstall Co., 4620 Hatfield St., Pittsburgh 1, Pa.

☐ **28. COATED FABRICS**—Wide range of natural and synthetic rubber coated fabrics for industrial uses is described in new catalog issued by Vulcan Proofing Co., First Ave. & 58th St., Brooklyn 20, N. Y.

☐ **29. REFRIGERATION UNITS**—Catalog No. 350 covers entire line of refrigeration equipment including the new induced draft cooling tower, plus more complete coverage on evaporative condensers. The Bush Manufacturing Co., West Hartford 10, Conn.

☐ **30. FASTENERS**—Folder describes the advantages of cold heading over machining in the production of fasteners, with descriptive diagrams and essential information on correct methods of specifying cold heading to effect greater economy. Continental Screw Co., New Bedford, Mass.

☐ **31. STEEL TAPES**—Precision steel measuring tapes and levels, transits and other tools for engineers, surveyors, mechanics, draftsmen, contractors, and the oil industry are detailed in new catalog available from The L. S. Starrett Co., Athol, Mass.

☐ **32. MULTIPRESS**—Bulletin describes the Multipress, a multiple purpose tool tailor-made to the
(Please turn to page 22)

THE RANGE INDUSTRY

Aluminum is an essential metal in this important field of modern manufacturing. The illustration indicates some of the numerous aluminum parts that we produce for the nation's leading range makers. It is a phase of our contract activity that we have enjoyed for many years.

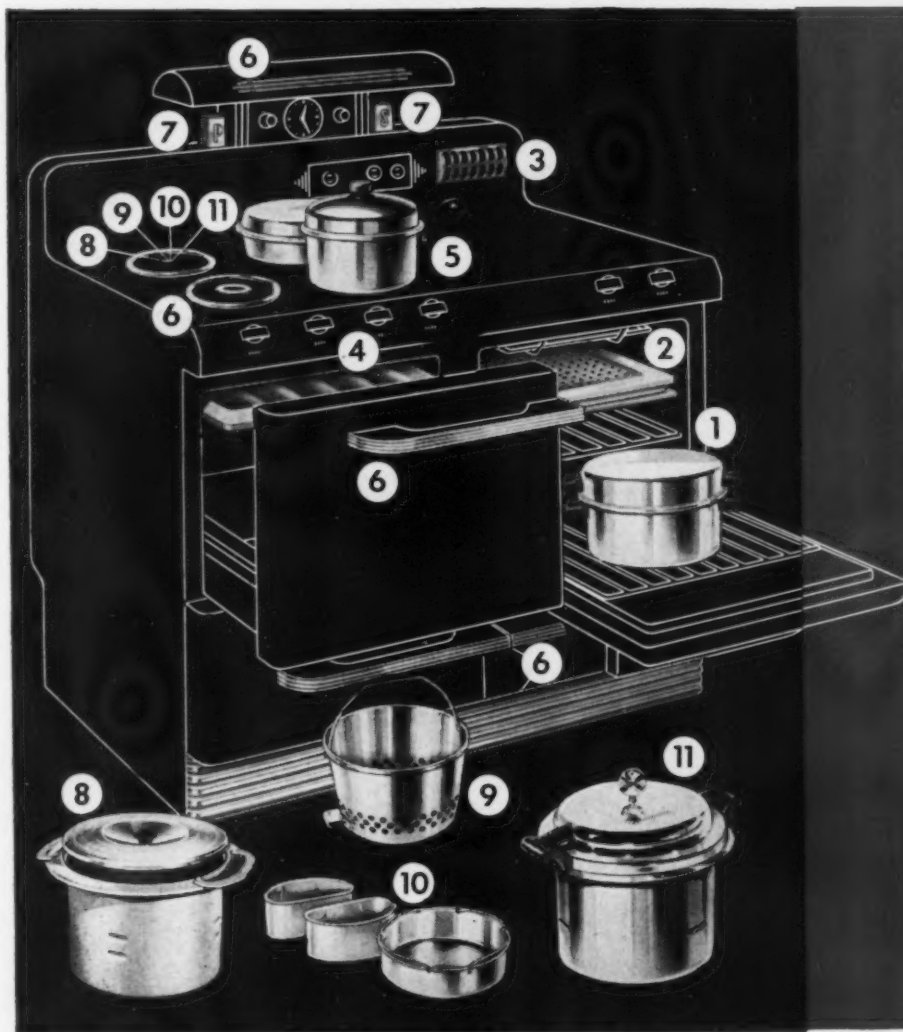
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Whatever your product may be, if it requires aluminum parts, our diversified skills and facilities can produce them. Alloys and thicknesses? What are your needs? We custom roll sheet metal to your parts specifications, in our own

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Your inquiry will focus our full attention on *your* needs... at once.



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(Continued from page 20)

user's exact requirements for any operation calling for controlled pressures from 1 to 35 tons. Numerous illustrations show wide variety of uses. The Denison Engineering Co., Columbus 16, O.

☐ **33. JACKS**—Complete specifications and application information on all sizes and types of mechanical and hydraulic jacks are included in a new catalog No. 50 issued by Templeton, Kenly & Co., 1020 S. Central Ave., Chicago 44, Ill.

☐ **34. PACKAGING**—"101 Ways to Get Better Packaging" is the title of a compact reference manual on latest developments in paper and rigid transparent packaging, including many short cuts and money-saving ideas. W. C. Ritchie & Co., 8830 S. Baltimore Ave., Chicago 17, Ill.

☐ **35. MACHINE SHOP TOOLS**—New booklet called "Machine Shop Time Savers" describes and illustrates radii and angle dressers, cutting tools, vise jaws, parallels, and jaw clamps made by J & S Tool Co., Inc., 477 Main St., East Orange, N. J.

☐ **36. AIRBLASTING TANKS**—Bulletin No. 41-A covers pressure tanks for airblasting, including those that operate continuously and intermittently. Pictures and detail drawings illustrate the text. American Wheelabrator and Equipment Corp., 4 S. Byrkit St., Mishawaka, Ind.

☐ **37. COPPER ALLOY**—New edition of "Copper and Copper Alloy Specifications Index" lists Ancon's most generally used alloys, together with all applicable specifications. Section II lists specifications in numerical order with a brief description of materials covered as to grade, type, temper, anneal, etc. The American Brass Co., Waterbury 20, Conn.

☐ **38. GEAR REDUCERS**—28-page bulletin details new line of heavy duty herringbone gear reducers for capacities up to 1000 hp. Included are descriptions of single, double and triple reduction units, together with various types of rating tables. De Laval Steam Turbine Co., Trenton 2, N. J.

☐ **39. METAL CLEANING**—"Some Good Things to Know About Metal

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Cleaning" is the title of a 44-page booklet which discusses specific materials, equipment and procedures for effective removal of soils resulting from fabricating operations. Oakite Products, Inc., 154 Thames St., New York 6, N. Y.

☐ **40. CARBIDE TIPPED TOOLS**—Catalog No. 104 lists and illustrates carbide tipped tools, together with instruction on their use and care, grinding information, and suggested feeds and speeds when drilling or reaming various materials. Whitman & Barnes, 40600 Plymouth Rd., Plymouth, Mich.

☐ **41. WELDING**—Advantages of flash butt welding by controlled techniques and typical product applications are shown in a fully-illustrated 20-page booklet. Products and subassemblies from 4" to 100" in diameter and up to 16 mi. long are described. The American Welding & Mfg. Co., Warren, O.

☐ **42. RESIN**—Booklet describes variety of applications of Poly-pale resin in the protective coatings field. Included is a table of typical physical and chemical properties of the resin, as well as a listing of its general properties. Hercules Powder Co., Wilmington, Del.

☐ **43. FANS**—Illustrated catalog gives full engineering data, dimensions, performance and prices on all types and sizes of fans for industrial, commercial and residential applications. Chelsea Fan & Blower Co., Inc., 1206 Grove St., Irvington, N. J.

☐ **44. CUTTING TOOLS**—Catalog No. 18 is a tooling manual containing not only descriptions and prices but many suggested uses of Midget Mills and other tools, together with pertinent technical information. Severance Tool Industries, Inc., Saginaw, Mich.

☐ **45. LIFT TRUCKS**—Advanced features of the new MD hydraulic lift truck, developed to permit easier and more economical handling by one man of loads up to 2 tons or more, are presented in detail in Bulletin 5031. Barrett-Cravens Co., 4609 S. Western Blvd., Chicago 9, Ill.

☐ **46. CENTRIFUGAL PUMP**—Self-priming centrifugal pump, which will not air bind or vapor lock, is the subject of an 8-page bulletin. The pump can prime itself in 10 seconds or 2 minutes, depending on suction conditions, and ejects all vapor and air in the line while running. Allis-Chalmers Mfg. Co., 923 S. 70th St., Milwaukee, Wis.

☐ **47. LABELING**—Revised edition of trouble-shooting booklet called "Successful Can Labeling," covers labeling difficulties, their causes and correctives. Included also are charts on determining temperatures, selecting proper gums, etc. National Adhesives, 270 Madison Ave., New York 16, N. Y.

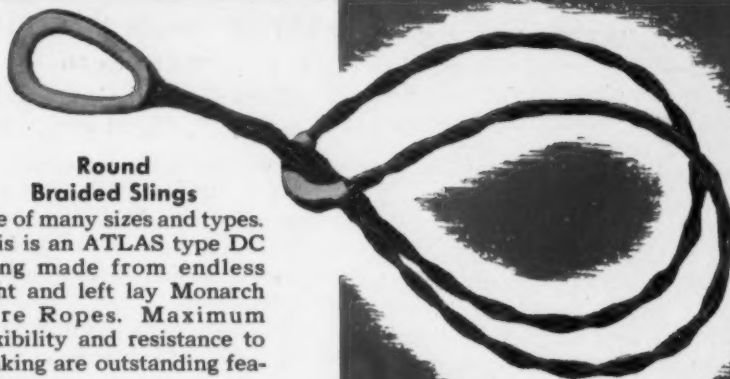
☐ **48. PORTABLE TOOLS**—Complete specifications on 147 different types and models of portable air tools, and information on several accessories, are contained in a 44-page catalog issued by Buckeye Tools Corp., 21 W. Apple St., Dayton 1, O.

☐ **49. CARPET CLEANING**—Concise, illustrated instructions on the correct way of cleaning rugs, carpets and upholstery is presented in an 8-page folder issued by Multi-Clean Products, Inc., 2277 Ford Pkwy., St. Paul 1, Minn.

☐ **50. OIL SEALS**—16-page handbook covers the principle of Clipper Seals, their construction, advantages in various applications, installation data, and other information of interest to oil seal users. Johns-Manville, 22 E. 40th St., New York 16, N. Y.

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There's a MACWHYTE Sling

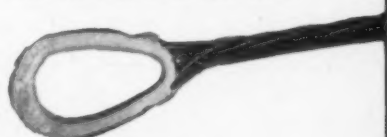


Round Braided Slings

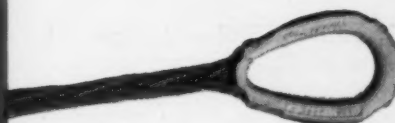
One of many sizes and types. This is an ATLAS type DC Sling made from endless right and left lay Monarch Wire Ropes. Maximum flexibility and resistance to kinking are outstanding features.

Flat Braided Slings

This is a DREW type 5 Sling available in many sizes and assemblies. The DREW Sling is made from one endless Monarch Wire Rope—very flexible and kink resistant.

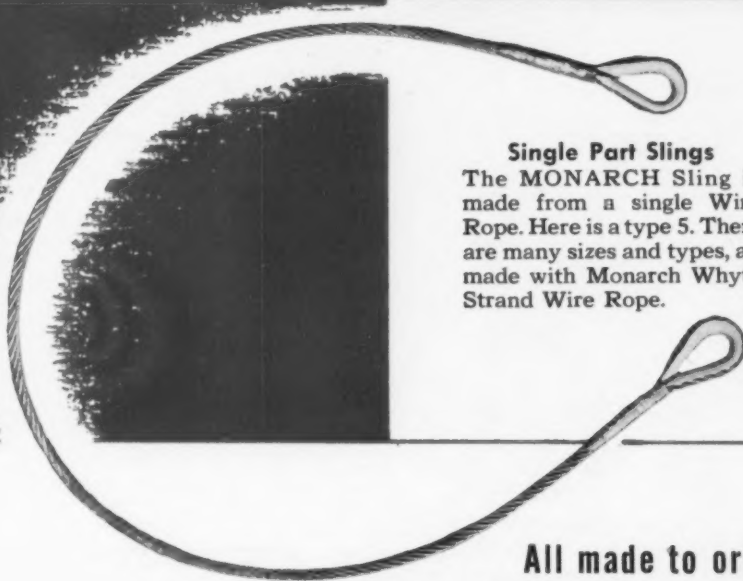


That's the right sling



Single Part Slings

The MONARCH Sling is made from a single Wire Rope. Here is a type 5. There are many sizes and types, all made with Monarch Whyte Strand Wire Rope.



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All made to order for greatest safety

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(Continued from page 22)

☐ **51. MOUNTED WHEELS & POINTS**—New handbook catalog shows a complete line of mounted wheels and points in blueprint style and actual size. Bay State Abrasive Products Co., Westboro, Mass.

☐ **52. BRONZE BEARINGS** — In line with the trend toward standard size bronze bearings, to provide quick delivery at low cost, Johnson Bronze Co. offers a sleeve bearing slide rule that tells you at a glance whether you can substitute its general purpose bearings, from stock, in place of your specials. Johnson Bronze Co., 1225 S. Mill St., New Castle, Pa.

☐ **53. FASTENERS**—92-page catalog on bolts, nuts, screws and washers contains specifications and list prices in large readable type for quick reference. Both standard and special items are covered. Atlas Screw & Specialty Co., 450 Broome St., New York 13, N. Y.

☐ **54. HYDRAULIC PRESSES**—Illustrations and descriptive material on a wide variety of hydraulic presses designed and built for particular purposes are contained in literature released by the C. A. Lawton Co., De Pere, Wis.

☐ **55. LEVEL**—Informative Circular No. 472-1 on P&W 15-inch precision level describes and illustrates use and care of the tool which is called "the foundation of accurate machine performance". Pratt & Whitney, Division Niles-Bement-Pond Co., West Hartford 1, Conn.

☐ **56. PRESSURE REGULATORS**—Bulletin S-22-C deals with a complete line of low pressure regulating valves, valve accessories and pressure master controls, for controlling gases and liquids in level, temperature or pressure requirements. Swartout Co., 18511 Euclid Ave., Cleveland 12, O.

☐ **57. STEAM PLANT EQUIPMENT**—Blow-off valves, water columns and gages, liquid level indicators and recorders, expansion joints, steam traps, strainers and spray nozzles, and the company's research facilities are described in Bulletin G-1307. Yarnall-Waring Co., Mermaid Lane, Philadelphia 18, Pa.

LATEST TRADE LITERATURE

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☐ **58. FIRE FIGHTING**—Data and recommended fire fighting techniques from the development of "Pyrodyne" are summarized in a new booklet entitled "Abundant Wet Water for Fire Fighting". Aquadyne Corp., 220 E. 42nd St., New York 17, N. Y.

☐ **59. DIAL GAUGES** — General catalog, No. 58, describes and illustrates complete line of micrometer dial gauges and micrometer dial indicators together with new price list. B. C. Ames Co., Waltham, Mass.

☐ **60. SAW BLADES**—Four new product folders on Resistor hack saw blades and profile and wavy set band saw blades feature application pictures, hints on metal cutting, and other information of general interest. The Henry G. Thompson & Son Co., New Haven 5, Conn.

☐ **61. ALUMINUM CLEANING** — Latest information on Permag materials for cleaning and processing aluminum is contained in a new booklet. Included are new materials and methods which cover all cleaning and chemical preparation operations before the final finish. Magnuson Products Corp., 50 Court St., Brooklyn 2, N. Y.

☐ **62. LIGHT DIMMING** — Complete technical data, including charts and illustrations, on the Powerstat line of light dimming equipment, is contained in a 12-page bulletin issued by The Superior Electric Co., Bristol, Conn.

☐ **63. MOTOR STARTERS**—"Tomorrow's Starter—Today!" is the title of 20-page booklet B-4677 de-

scribing advantages of the new Life-Linestarter, which is said to give better motor protection and lower operating costs. Westinghouse Electric Corp., P. O. Box 868, Pittsburgh 30, Pa.

☐ **64. CLEANING COMPOUND**—A free sample of Elektro-Purj-It, a new multi-purpose cleaning compound, said to loosen dirt fast and easily, is available from The Diversey Corp., 1820 Roscoe St., Chicago 13, Ill.

☐ **65. FLOOR CARE**—A 32-page booklet entitled "Proper Care of Floors" is offered by West Disinfecting Co., 42-16 West St., Long Island City 1, N. Y.

☐ **66. BELT FINISHING**—Illustrations and helpful data about belt finishing and polishing are contained in a new bulletin available from Behr-Manning, Dept. P-550, Troy, N. Y.

☐ **67. ROPE**—A cost-of-service chart with which you can quickly figure what it is costing you to use your present rope and possible savings is available from Plymouth Cordage Co., Plymouth, Mass.

☐ **68. DRILL & TAP CHUCKS**—8-page bulletin No. 1-50 gives details, including complete specifications and prices, on drill and tap chucks manufactured by Scully-Jones and Co., 1901 S. Rockwell St., Chicago 8, Ill.

☐ **69. WORK GLOVES**—Catalog shows complete new line of work gloves, almost doubling size of previous style range. Included are leather combinations, industrial gloves, double chore gloves, hot mill gloves, etc. Riegel Textile Corp., 342 Madison Ave., New York 17, N. Y.

☐ **70. CUTTER and Tool Grinding Machine**—No. 10N cutter and tool grinding machine with universal equipment, or with plain equipment for those whose sole concern is cutter and tool sharpening, is detailed in illustrated catalog offered by Brown & Sharpe Mfg. Co., Providence 1, R. I.

☐ **71. PLATFORM TRUCKS** — Complete details on the Hallowell "700" steel platform trucks are given in illustrated Bulletin 718 available from Standard Pressed Steel Co., Jenkintown, Pa.
(Please turn to page 254)



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Sheffield—first to put tooth-paste in tubes, in 1892—has served packagers for over half a century in producing billions of tubes for—

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NEW!

TOTALLY-ENCLOSED NON-VENTILATED



NOW — a complete range of Totally-Enclosed Crocker-Wheeler Motors for every industrial need

To motor users who want the engineered economy of the Sealedpower Motor, yet do not require its higher ratings, Crocker-Wheeler now offers a totally-enclosed, non-ventilated motor in sizes up to 3 hp in NEMA frames 203-225.

This new line of C-W Totally-Enclosed Motors is designed for the same type of applications as the Sealedpower Motor, and is particularly suitable for hoist duty. Just as in its maintenance-saving "big brother", vital operating parts in Crocker-Wheeler's Form BE motor are sealed in a frame of sturdy gray iron, completely pro-

tected against dust, acid and alkali fumes, corrosive liquids and gases, airborne moisture, steam, metal chips, sawdust and lint.

Used to power any equipment, the Form BE motor, with its modern streamlined housing, adds to a product's eye-appeal. But the real beauty of it is, you can install this motor in inaccessible places — and forget it! The double-row-width sealed bearings are pre-lubricated . . . require no attention for five years.

Once you've checked its many advantages, you'll agree that this new motor is every inch a Crocker-Wheeler design — long on performance, short on maintenance. Now, whatever NEMA rating you need in a totally-enclosed motor, specify *Crocker-Wheeler*, and see why C-W has set the quality standard for 62 years. Send for bulletins covering the complete range. Fill out and mail coupon on the opposite page.

CROCKER-WHEELER MOTOR

... in ratings up to 3 hp

These dollar-saving features make it another C-W "maintenance miser"

● **NO LUBRICATION NEEDED** The prelubricated and sealed double-row-width bearings require no attention for at least five years ... it's a motor you can install and forget.

● **COMPLETE PROTECTION** against conducting or abrasive dust, acid or alkali fumes,

corrosive liquids, airborne moisture, steam, corrosive gases, metal chips, lint.

● **BEATS RUST AND CORROSION** — frame is rugged gray iron, for highest resistance to moisture and corrosion. There is no steel to rust.

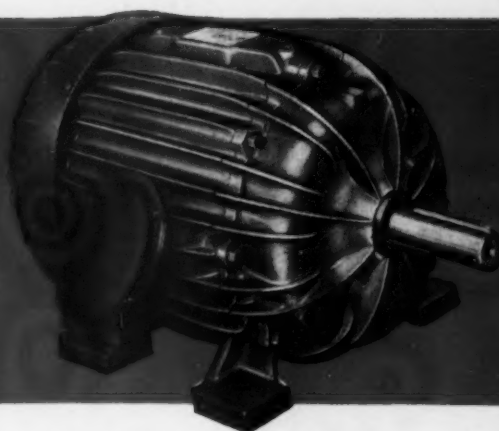
● **FOR ANY APPLICATION** (up to 3 hp) where excessive maintenance is indicated. In NEMA frames 203-225, with connectional mountings, and NEMA C face and D flange mountings, round frame or with feet.

In ratings from 3 to 100 hp, get the proved

C-W SEALEDPOWER

TOTALLY-ENCLOSED ... FAN COOLED MOTOR

No other motor in its class has exterior cooling, with the fan driven airstream, blowing over the finned frame, carrying dust and fumes *outside and away*. Fins provide 150% more cooling surface. Beats rust and corrosion, too, because the frame is rugged *gray iron*. Send coupon for the booklet ... compare ... see why the Sealedpower saves 80% of maintenance costs.



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CROCKER-WHEELER DIVISION,

BRANCH OFFICES: Atlanta, Birmingham, Boston, Buffalo, Chicago, Cincinnati, Cleveland, Dallas, Denver, Detroit, Houston, Kansas City, Los Angeles, Milwaukee, Minneapolis, New Orleans, New York, Newark, Philadelphia, Pittsburgh, St. Louis, Salt Lake City, San Francisco, Seattle, Tulsa, Washington, Wilmington. Representatives in principal cities.



AMPERE, N. J.

CW-1



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Protected-Type Motors



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Elliott motors and generators larger than the Crocker-Wheeler line are built by the Ridgway Division at Ridgway, Pa.

Elliott Company, Advertising Dept., Jeannette, Pa.

Please send Bulletins checked:

- ☐ SL-300-4, describing C-W Totally Enclosed, Non-ventilated Motors.
☐ SL-300-2A, describing SEALEDPOWER Motors.

Name..... P-650

Title or Function.....

Company.....

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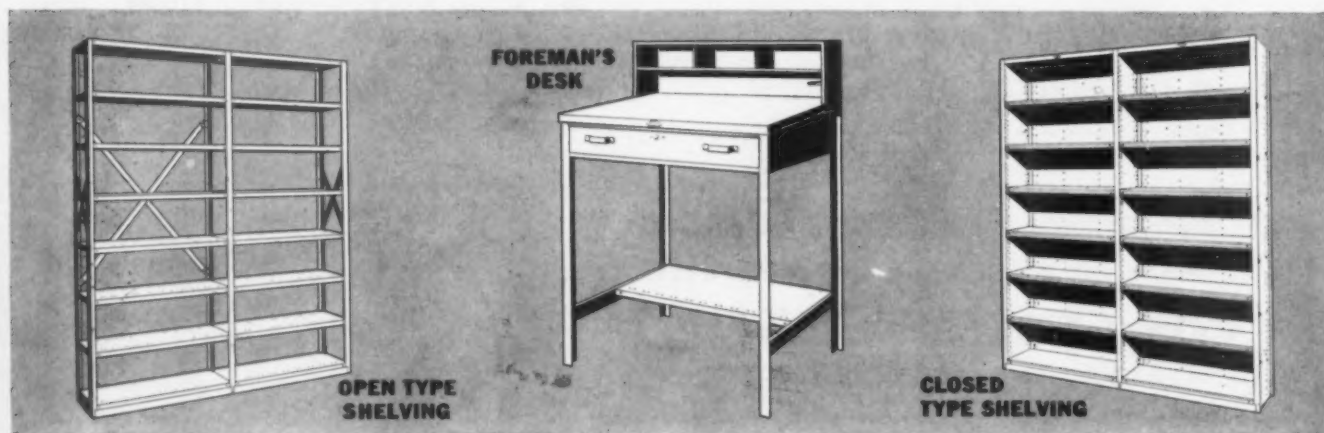


ALL THAT THE NAME IMPLIES!

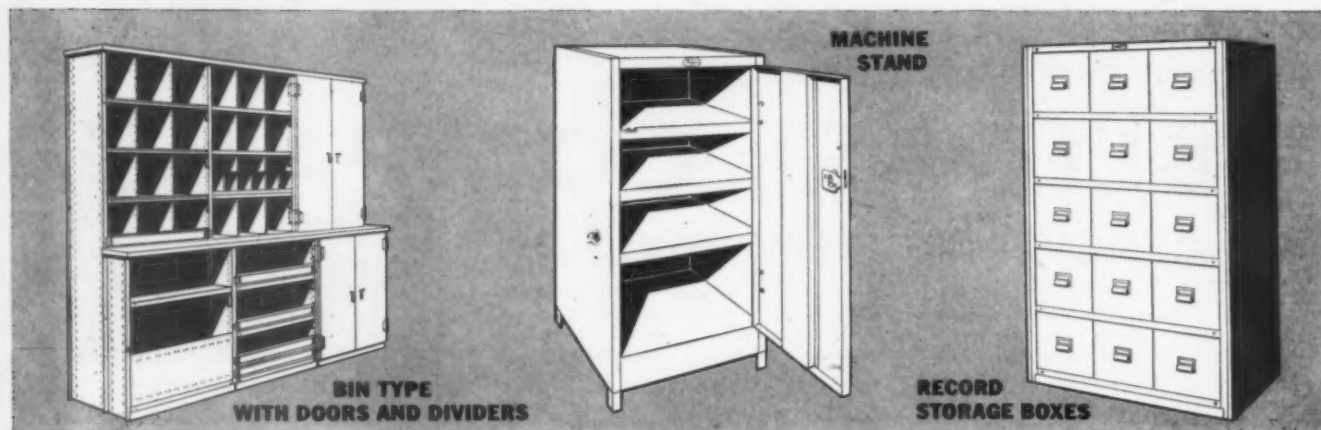
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Products are truly — all that the name implies. Write for your copy of the new full-line DeLuxe Catalog. DeLuxe also is equipped to produce special contract items to your design. Representatives in principal cities. Consult your Classified phone book under "Shelving."

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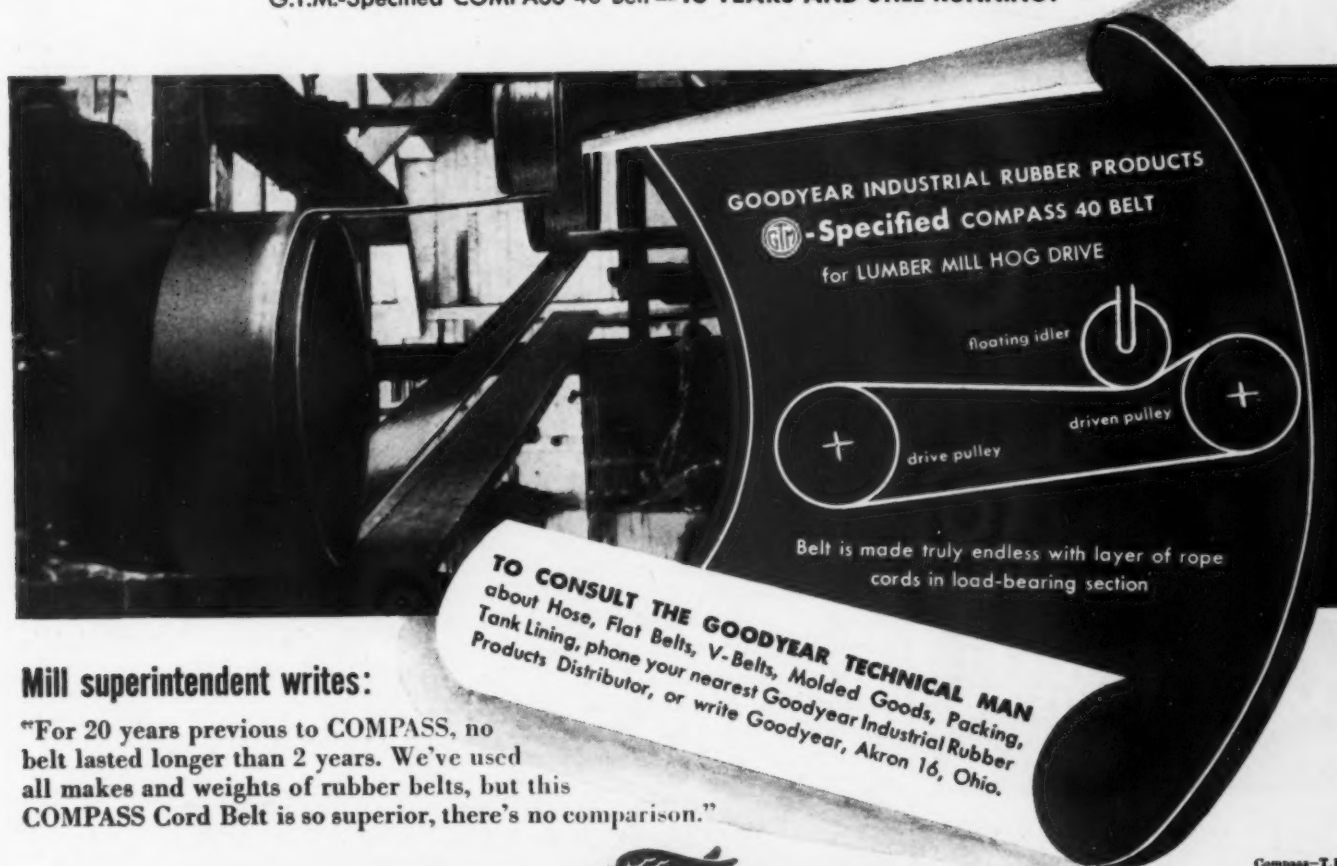
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8 times longer service

with **COMPASS Belt on Hog Drive**

Best Previous Belt Service — 2 years

G.T.M.-Specified COMPASS 40 Belt — 16 YEARS AND STILL RUNNING!



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G.T.M.-Specified COMPASS 40 BELT
for LUMBER MILL HOG DRIVE

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CORROSION TROUBLES?
This may give the answer!



**Send today for
bulletin on filter
cloth made of
HASTELLOY**

HERE'S A BULLETIN that may show you how to stop or effectively reduce corrosion losses in screening and filtering operations. It describes Roebbling's new wire filter cloth made of Hastelloy ... cloth with an entirely new resistance to many acids, despite high temperatures and a wide range of concentrations. The bulletin also gives a comprehensive list of corrosive media and indicates where Hastelloy alloys may be expected to give genuinely superior service.

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Today it's Roebbling!

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Woven Wire Fabrics Division
John A. Roebbling & Sons Co., Roebbling, N. J.
Gentlemen: Send me bulletin giving full information about your new filter cloth made of Hastelloy.

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Company.....
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A CENTURY OF CONFIDENCE

F.O.B. *Philosophy of buying*

NEBRASKA's state purchasing law provides that emergency purchases can be made directly by such institutions as the Trade School at Milford, with a "goods received requisition" presented later on to the State Purchasing Agent for his approval after the transaction is completed. P. A. Blaine Yoder has been watching this situation with some concern as more and more of the requirements, for bigger and bigger dollar values, were reported under the emergency provision. In March, when 9 out of 10 of the requisitions from Milford were of the "goods received" variety, he announced that he was fed up with this continuing emergency and refused to continue in the rubber stamp role of certifying other people's purchases. He suggested that the purchasing department of the Board of Control or the Vocational Education Department might take over, but both of these bodies displayed a notable lack of enthusiasm over the project. Meanwhile the Trade School is facing a real emergency regarding the certification of their orders and invoices.

IF Mr. Warrick is seeking a kindred spirit in this purchasing-softball combination of job and extra-curricular activities, we suggest that he get in touch with P. A. John Hodges of the Indiana Limestone Company, at Bedford, Indiana. The February issue of the company's house magazine, *Ilco Builders*, devoted a page to the purchasing department. After stressing the fact that purchasing is a full time job, it goes on to report the "after hours" career of Mr. Hodges as coach and manager of the Ilco softball and basketball teams, which have compiled an enviable competitive record under his skillful tutelage. The softballers are currently starring in the role of defending champions in the Industrial League. In February, when the article was published, the basketball

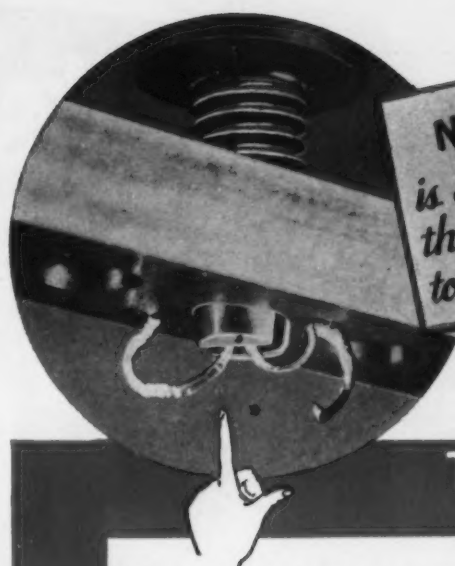
team was not only a leading contender for league honors, but was in demand as a road attraction, with a schedule covering a radius of more than a hundred miles. Consequently this busy purchaser-coach-manager was tripling in brass as driver of the company station wagon in which the team traveled to its out-of-town engagements.

WHILE most managements are scanning the pennies more carefully than ever, accountants at the Dravo Corp. of Pittsburgh are officially ignoring them under the policy of "centsless accounting" developed by Auditor L. F. Adams. The principle of penny elimination by Dravo digiteers means that accounting entries are made to the nearest whole dollar. Anything under 50 cents is dropped without ceremony; anything over 50 cents automatically goes up to the next higher dollar unit. The 50-cent items themselves are solved by adding or subtracting, as the case may be, to the nearest even dollar, which provides the same eventual balance as dismissing the other fractions. In defense of his system, Mr. Adams is quoted as saying that every accountant knows full well that the most precisely balanced corporate statements are at best no more than close estimates, in which the exact dollars are themselves open to debate, and that the centsless method has shown a neat and net saving of some 40% in accounting costs! We have long suspected that the penny is obsolescent as a monetary unit, but expected that the accountants would be the last to admit it.

SIZE of an industrial operation can be expressed in many ways. Production, sales, and payrolls are the most commonly used indicators. Every once in a while some one also measures it in purchases as well. This has been done in a booklet re-

cently issued by the Kaiser Industries, which comes up with some rather spectacular statistics. The electricity feeding Kaiser's aluminum and steel mills and other plants is equivalent to half the output of Hoover Dam, and more than twice the requirements of the City of San Francisco. Natural gas consumption of the Permanente Cement Company alone is enough to supply the needs of a city of 110,000 people. The annual bill for machinery and parts amounts to 10 million dollars; for general plant supplies, 7½ million dollars; for petroleum products, 3 million dollars; for refractories, 1½ million dollars, even though Kaiser industries themselves produce, use, and market a substantial volume of specialized refractories of their own. The annual freight bill is 26 million dollars. The organization forwards more than 50,000 truckloads of freight per year in addition to shipping 52,000 rail carloads and receiving 48,000—enough to make up a train 1,000 miles long.

SAYS the San Angelo (Texas) *Evening Standard*: "If city officials want to throw salesmen a curve, they have an experienced pitcher to do it." The reference is to C. L. Warrick, recently appointed City Purchasing Agent. Charlie Warrick broke into organized baseball in 1915, as a pitcher and infielder for the San Antonio Missions of the Texas League. Two years later he was up with the St. Louis Cardinals as a pitcher, but his major league career was cut short that summer when he signed up with the Army. Postwar, he pitched some semi-pro ball around Dallas, but the demands of business became more pressing and he hung up his glove in 1924. However, in 1939, he was back in the city's softball league, and his arm was still good enough to carry Pollock to the Trinity League championship in 1940. Pitching for the Colonial Baptist Church in 1941, he chalked up no less than three championships—the church association, the city majors, and the Southwestern play-offs in Oklahoma City. Coming to San Angelo in 1946 as a buyer with Sears Roebuck, he continued to serve 'em over the plate for Sears and Rotary. His latest exploit was managing the Sears team to the minor league pennant last summer. Yes, here's a P.A. who can really throw a curve.



NEW "TAP" SCREW
is actually a cutting tool
that removes material
to **TAP** its own threads!

ELIMINATE TAPPING COSTS

Here's how it's done. The slot, corresponding to flutes of a tap, provides two balanced cutting edges and a chip reservoir. *In photo, note chips cut and pushed ahead.*

HOLTITE "TAP" SCREWS

U.S. Patent No. 2,292,195

Other patents pending.

Do not confuse this remarkable new screw with the ordinary self-tapping screws that forcibly displace the material by a cold forging action.

Fundamentally a narrow fluted two-flute tap, this new "TAP" screw actually removes the material when cutting its own perfect mating threads to effect tighter, stronger fastenings that resist vibration.

Fine or curled metal chips, and tough, gummy non-metallic cuttings free themselves readily in the open slot reservoir to prevent binding. The two balanced cutting edges of slot cut threads much deeper than their own diameter.

Eliminate tapping operations by using HOLTITE "TAP" screws in metal, castings, alloy, rubber, plastics, etc. You'll get stronger fastenings at less cost!



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Dependability

... it's your right to expect and get full dependability from your supplier. Only then can you operate with maximum efficiency and economy ... be sure your product has the extra salability that comes from consistent uniformity and quality of manufacture. Pioneer in developing equipment and supplies for the plating and polishing industry, H-VW-M has honestly earned a highly regarded reputation for complete dependability under all circumstances.



Fair Prices

... you have a right to expect to get exactly what you pay for ... to receive equipment and supplies that accurately measure up to specifications and represent full value of your investment. H-VW-M equipment and supplies are priced to meet changing market conditions ... and H-VW-M *always* delivers full value. What's equally important, is the fact that because H-VW-M serves as the central source of supply for ALL the needs of the electroplating and polishing industry, you can always be sure that price levels will be equably maintained.



Uniform Quality

... means that you get full value for your investment. It means that you are doing a better job ... are helping your company operate at higher profit levels. The reputation for uniformly high quality H-VW-M has earned is one that has been built up honestly over many years. It is your right to expect it. Through strict control of every manufacturing process H-VW-M works ceaselessly to see that you get uniform quality.

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FAIRCHILD rely on**

BENDIX-SCINTILLA ELECTRICAL CONNECTORS

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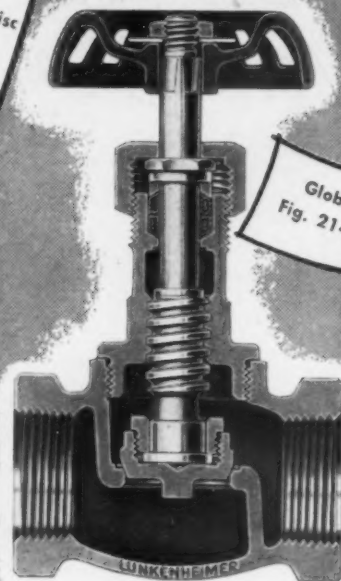


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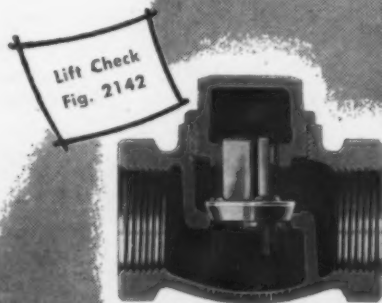
Gate
Fig. 2125
Double Wedge Disc
Fig. 2127
Solid Wedge Disc
Fig. 2129
Single Wedge Disc



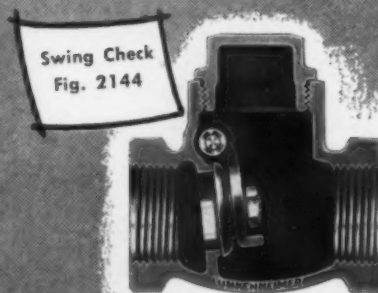
Globe
Fig. 2140



Angle
Fig. 2141



Lift Check
Fig. 2142



Swing Check
Fig. 2144

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this corrugated "luggage" box

Displays the product . . . suggests itself as a gift . . . prompts the purchase . . . simplifies the sale . . . encourages "take-with" buying . . . eliminates repacking and rewrapping . . . offers re-use value . . . is adaptable to mailing. Give your product package action to make it stand out above competitive merchandise. Consult Hinde & Dauch, Executive Offices, 5004 Decatur St., Sandusky, Ohio.

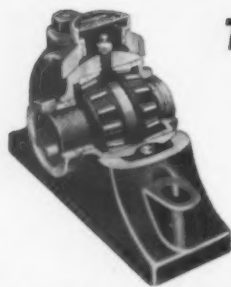
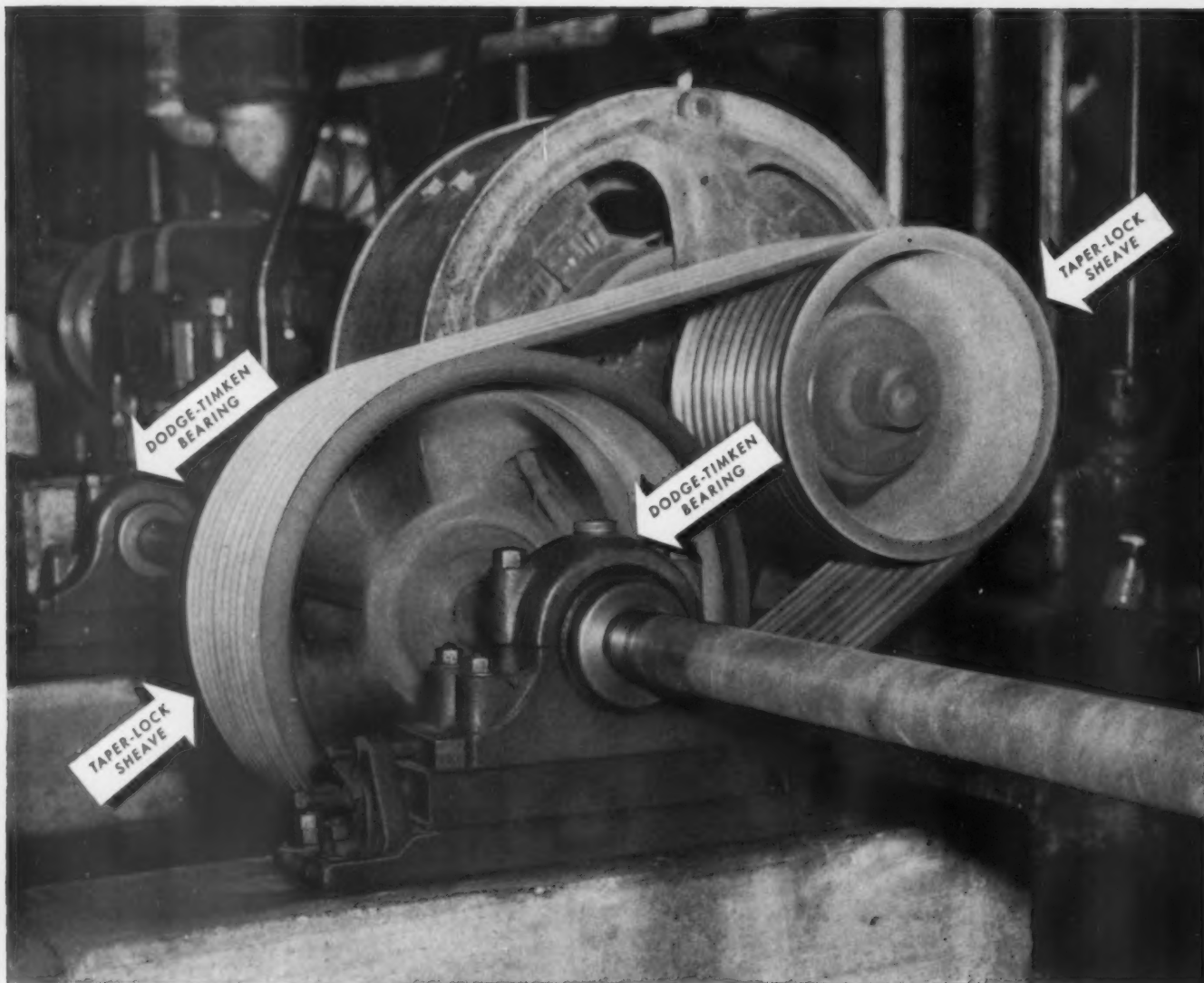


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With a gasoline like this great new No-Nox, you can be sure your new car will perform at its brilliant best.

And the new No-Nox not only gives new cars peak performance. It also gives new life, new pep, and stops knocks in older cars too — even many with heavily carboned engines!

So no matter what model you drive, get a tankful of the new No-Nox today.

See for yourself what a difference it makes!

Whisper-Quiet, Knock-Free Power!

Easy, Fast-Firing Starts!

Quick, Safe Passing!

Unexcelled Mileage!

Terrific Power in Every Drop!



Good Gulf—our famous "regular" gasoline
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TAP LIFE INCREASED.. TOOL COST DECREASED.. *with* **P&W TAPS**

Here are two widely separated jobs that prove there's a difference in Taps. In each case, the comparison is based on the same operation, the same material, the same machines. The only difference — and a *BIG* difference — is in the "make" of Tap. P&W "know how" in design, precision manufacture and special treatment gives more tapped holes per Tap — a plus factor on any job.

HERE'S ONE INSTANCE

Tool engineers in a midwest plant couldn't overcome excessive tap wear on a zinc die casting job — until they changed over to P&W TAPS. Under the same conditions, P&W stock taps (specially treated) produced many times the number of tapped holes per grind... in fact **TAP LIFE INCREASED OVER 300%**

... HERE'S ANOTHER

A New England tool and die company had been tapping in cold rolled steel, obtaining only a few thousand holes per tap. P&W TAPS were applied to the same job with the same equipment. **RESULT: TAP LIFE INCREASED 270%**

Pratt & Whitney

Division Niles-Bement-Pond Company
WEST HARTFORD 1, CONNECTICUT



*It pays to buy Taps on
a Performance Basis*

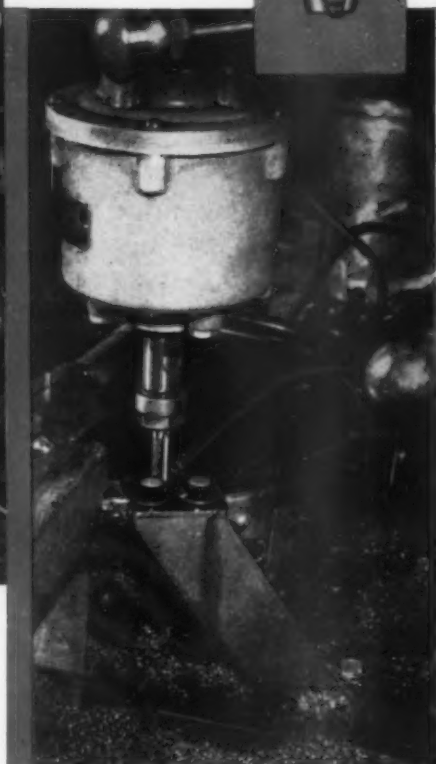
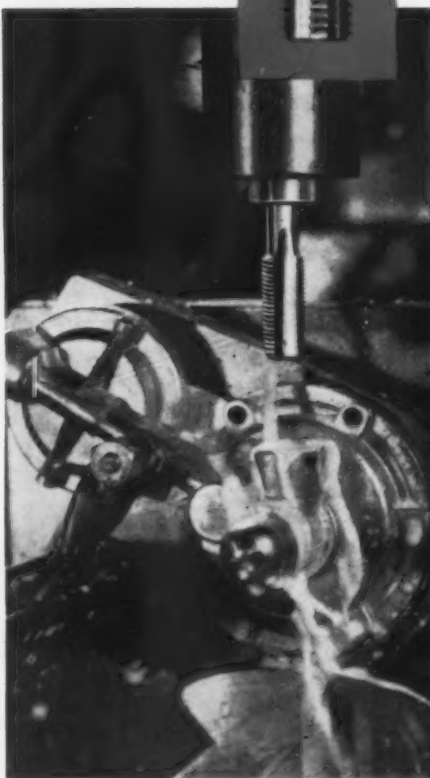
P&W TAPS

Branch Offices and Stock: Birmingham, Boston, Chicago, Cincinnati,
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Rochester, St. Louis, San Francisco



On this job: P&W
1/2" — 20 NF, HSS
Commercial Ground
Thread Bottoming
Hand Tap, specially
heat treated for the
job.

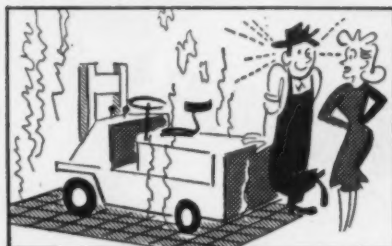
On this job: P&W
5/16" — 24 NF, HSS
Commercial Ground
Spiral Point Plug
Hand Tap, given our
special heat treat-
ment.



B.F. Goodrich



BFG Deluxe Cushions have the popular, high-rounded tread profile which absorbs vibration, gives easy steering!



HEAT A FACTOR IN YOUR PLANT? BFG "Oil-Proof" compound is the answer — highly heat resistant!



No problem is too small . . . nor too large for the T & W analysis man. Ask him in, even though your problems are little ones. His recommendations are impartial.



ANALYSIS PLAN

helps materials handling men cut cost corners

Here's how you can make big savings in tire and wheel costs, equipment maintenance and floor maintenance. An experienced tire and wheel man will survey your operation. He will study loads, hauls, handling equipment, floors and hauling surfaces, and discuss any special tire and wheel problems you may have. On completion of this survey the BFG man, without charge or obligation on your part, will submit recommendations as to the best type and size tires and wheels for your particular service with information on the longest-wearing compounds and on retreading. He will also provide suggestions on tire care and maintenance.

Send in the coupon below and start the wheels rolling for a B. F. Goodrich industrial tire and wheel expert to visit your plant and make your cost-cutting T & W analysis. You'll find the BFG man is *impartial*. He has no "axe to grind" for any one "type" of tire . . . his company makes and sells *ALL* types in *ALL* sizes!

For example, BFG offers industrial tire users a six-way choice of tread rubber compounds. Each compound has been carefully engineered and developed for certain of our wide range of tire types to meet certain operating conditions. *Your T & W analysis includes recommendations on correct compounds!*

SPECIAL RUBBER COMPOUNDING—EXCLUSIVE WITH BFG

COMPOUND 1. **UNIVERSAL** . . . resistant to cutting, chipping and excessive wear. Greater cushioning compound.

COMPOUND 2. **LOW-POWER** . . . cuts power consumption by reducing rolling resistance.

COMPOUND 3. **OIL-PROOF** . . . impervious to oil or other petroleum products in operating areas. Resists higher temperatures.

COMPOUND 4. **NOVITE** . . . protects floors, helps eliminate noise and almost doubles load-carrying capacity.

COMPOUND 5. **SPECIAL NO-MARKING** compound will not mark or mar flooring.

COMPOUND 6. **STATIC-CONDUCTOR** . . . grounds the vehicle—where static is a danger factor, protects operator, guards against fire.

Dealerships Available In a Few Localities—Write B. F. Goodrich, Akron



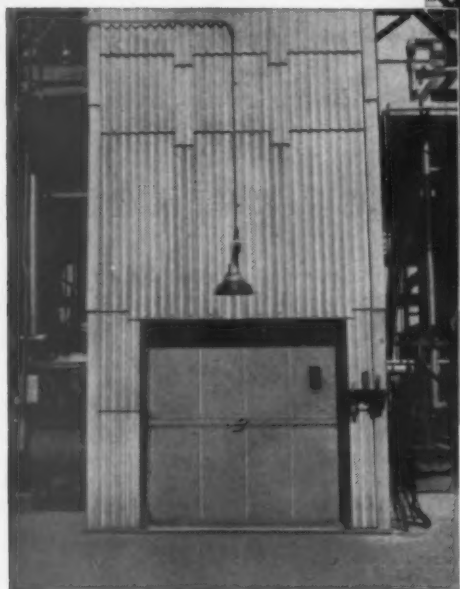
The B. F. Goodrich Co.
Department TW-55
Akron, Ohio

Please give me additional information on your Tire and Wheel Analysis plan.

Name _____
Title _____
Company _____
City _____ State _____

K&M "Century" ASBESTOS CORRUGATED WALLS

NOT PERISHABLE



Mid-Continent Petroleum Corporation Refinery, West Tulsa, Oklahoma.

Elevator Tower and Penthouse protected by K&M "Century" Asbestos Corrugated, applied with "TOP-SIDE"® Fasteners.

Industrial and commercial building walls need a rugged constitution. That's exactly why K&M "Century" Asbestos Corrugated walls are bound to be an economy for you. They provide all the structural strength and staying power of the proved K&M Asbestos-Cement combination. They shed extremes of weather and other atmospheric threats, without even needing paint. They defy fire, rust, rot, rodents and termites. You can plainly add it all up to long-term freedom from maintenance.

Initial savings are just as plain, for K&M "Century" Asbestos Corrugated goes up fast, no special work needed. Fitting is easy with ordinary cutting and drilling tools. Even scaffolds and extra labor can be eliminated by using "TOP-SIDE"® fasteners. They're made so that K&M Corrugated can be anchored to steel members of any type, on sides or roofs. You'll have protective enclosure—and cost figures—that keep on looking good.

Write for the name of your nearest K&M Distributor, and full data on K&M "Century" Asbestos Corrugated.

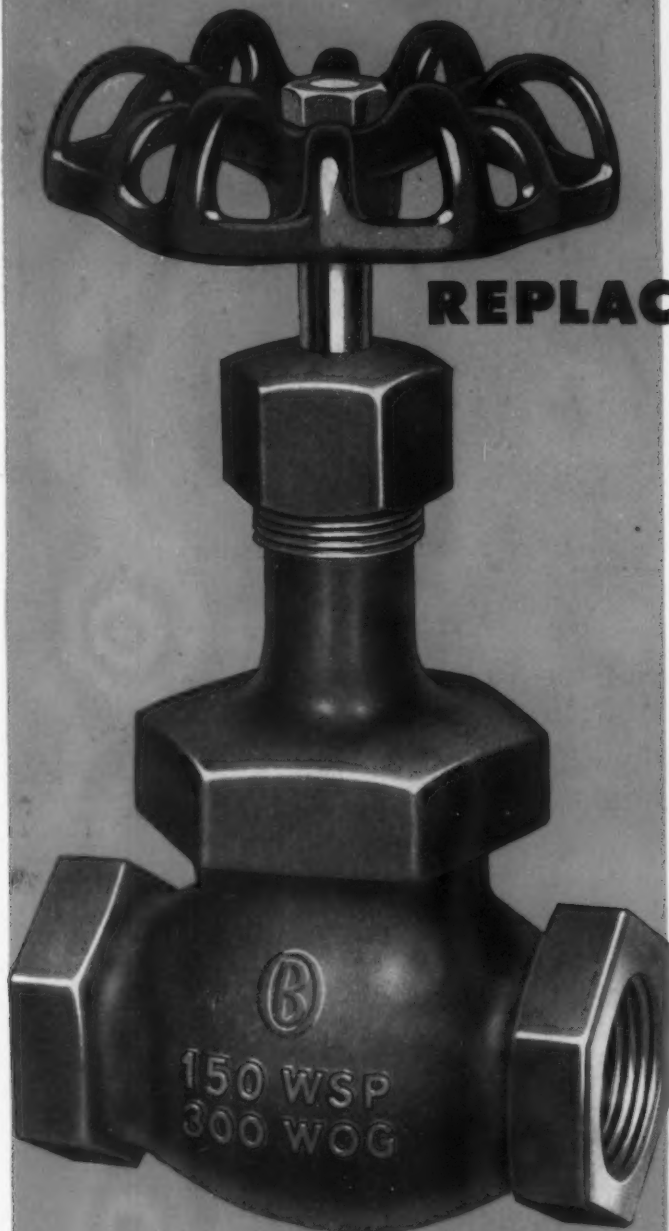
*© H. & B. Enterprise Corp.

Nature made Asbestos . . . Keasbey & Mattison has made it serve mankind since 1873

KEASBEY & MATTISON
COMPANY • AMBLER • PENNSYLVANIA



O-B No. 11 Outside Screw Bonnet Valve. Available in globe or angle from ½-inch to 3-inch sizes and suitable for general industrial use on air, oil, gas, water, or steam. Furnished with 150-lb. W.S.P. steam discs for temperatures up to 550° F. Other type discs available on request.



REPLACING WORN VALVES

again?

End the valve replacement problem in your plant with extra heavy, solid cast O-B valves. For example, No. 11 Line valve with heavied-up wall sections provides at no extra cost the additional sturdiness you need for safety on higher industrial pressures and steam service.

The free swivel action of the disc holder prevents cutting or gouging of the composition disc when the valve is closed. Disc change is simple, for the outside screw-over bonnet design permits easy take-down and husky bonnet hexes resist wrench damage.

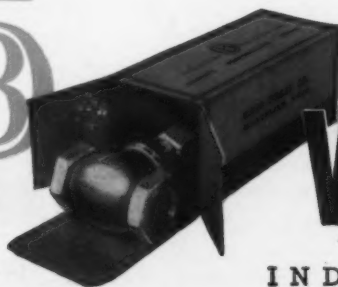
All parts are cast of high grade bronze and accurately machined to assure you leak-tight joints and trouble-free operation on jobs where service demands are unusually tough.

Your local O-B distributor can supply any of your industrial valve needs—see him when you need a better valve.

OHIO BRASS COMPANY, Mansfield 5, Ohio

Ohio Brass 

FOR DOMESTIC AND



VALVES

INDUSTRIAL USE



FROM THE SMALLEST TO THE LARGEST—

Yes, anything you can want in a pressure gauge is at your beck and call in the great line of instruments bearing the most respected name in gauges...MARSH!

Not just any size, but any duty, any case style, any finish, any dial graduations, any mounting. So complete is the line, that gauges which are "special" to other manufacturers, are often standard to Marsh—an important reason for the plus value you get in Marsh instruments.

You may merely need a gauge for ordinary service. Or

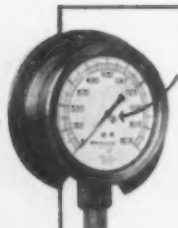
you may need a gauge that will stand up under tough conditions such as extreme pressure, extreme temperature, corrosion, vibration, pulsation. But whatever the service you have only to select the Marsh Gauge recommended for the specific condition to find the final answer to your instrument problem.

Ask for catalog covering Marsh products which include: A full line and range of gauges in pressure, compound, altitude, hydraulic, sprinkler, ammonia, ounce-graduated retard, test, and diaphragm types. Dial thermometers in rigid stem and remote reading types. A broad line of steam heating and refrigeration specialties including the Electrimatic line of refrigeration water regulators and solenoid valves.

MARSH INSTRUMENT COMPANY

Sales affiliate of JAS. P. MARSH CORPORATION, Dept. G., Skokie, Ill.

Export Dept.: 155 E. 44th St., New York



Marsh alone has the **RECALIBRATOR**—quickest and best way to correct a gauge or dial thermometer that has been knocked out of adjustment.

MARSH GAUGES

Steel Is First

To Make

Things Last

Metal sculpture executed in Weirzin steel by Lyman Beckwith. Photography by Cle Clark. Cutting and shaping of figures demonstrates exceptional qualities of Weirzin electrolytic zinc coated steel.



Outwit the weather with a sash that lasts —

Smart girl, this lady of the house. The storm sash she bought is made of *steel*, metal of a million uses.

No other material—only steel—could serve her so well or give her so much value for her money. For steel is easy and economical to fabricate into flawless products. Steel offers a unique combination of strength, durability, adaptability and economy. Steel is produced with the right qualities and characteristics for the exact job it's meant to do.

And so this storm sash, painted to harmonize with the

colors of the house, will both outwit the weather and resist the elements. Atmospheric conditions that stain and discolor any unpainted material will not affect it. And it will withstand hard usage with the proved strength of steel.

The same values of steel that make steel sash better also make better products of all kinds—household appliances or kitchen cabinets, wall tiles or lighting fixtures. You can count on steel to serve you best.

- Weirzin Electrolytic Zinc Coated Sheets and Strip
- Weirite Tin Plate and Tin Mill Products
- Weirton Hot-Rolled and Cold-Rolled Sheets and Strip
- Weirton High-Carbon Cold-Rolled Spring Steel
- N-A-X High-Tensile Steel

WEIRTON STEEL CO.

WEIRTON, W. VA., Sales Offices in Principal Cities

Division of NATIONAL STEEL CORPORATION, Executive Offices, Pittsburgh, Pennsylvania





These AO Horsehide Gloves and Mittens Outwear Asbestos on Heat Jobs!

When you want the *combination* of protection against extreme heat and wear for your glove and mitten money, the AO 5X166 Heat Glove and 6X151 One-Finger Mitten are your best buys! What's more, they are more *flexible* — permitting workers to do a better job. Highly recommended for die casting, drop forging, annealing furnaces, block bending in shipyard work, steel mill coil tying and similar operations.

QUICK FACTS

- Chrome tanned horsesplit leather, specially tanned to resist heat.
- Both glove and mitten have heavy wool liner and full 4" chrome leather cuff also lined. (Also available with 2" cuff.)
- Clute pattern. Reinforced with leather strap around crotch of thumb.

**Your nearest AO Safety
Products Representative
can supply you.**

American Optical
SAFETY PRODUCTS DIVISION

Southbridge, Massachusetts • Branches in Principal Cities

CONTINUOUS CLEAN COTTON TOWELS KEEP EMPLOYEE MORALE HIGH!



says personnel manager



Servilinen is the plus service that your employees appreciate. It keeps floors un-littered — it saves on plumbing bills.

Call the Servilinen towel supplier in your city today. His services will save you time and money.

This campaign is being sponsored in the interests of the linen supply industry by

M. SNOWER & COMPANY

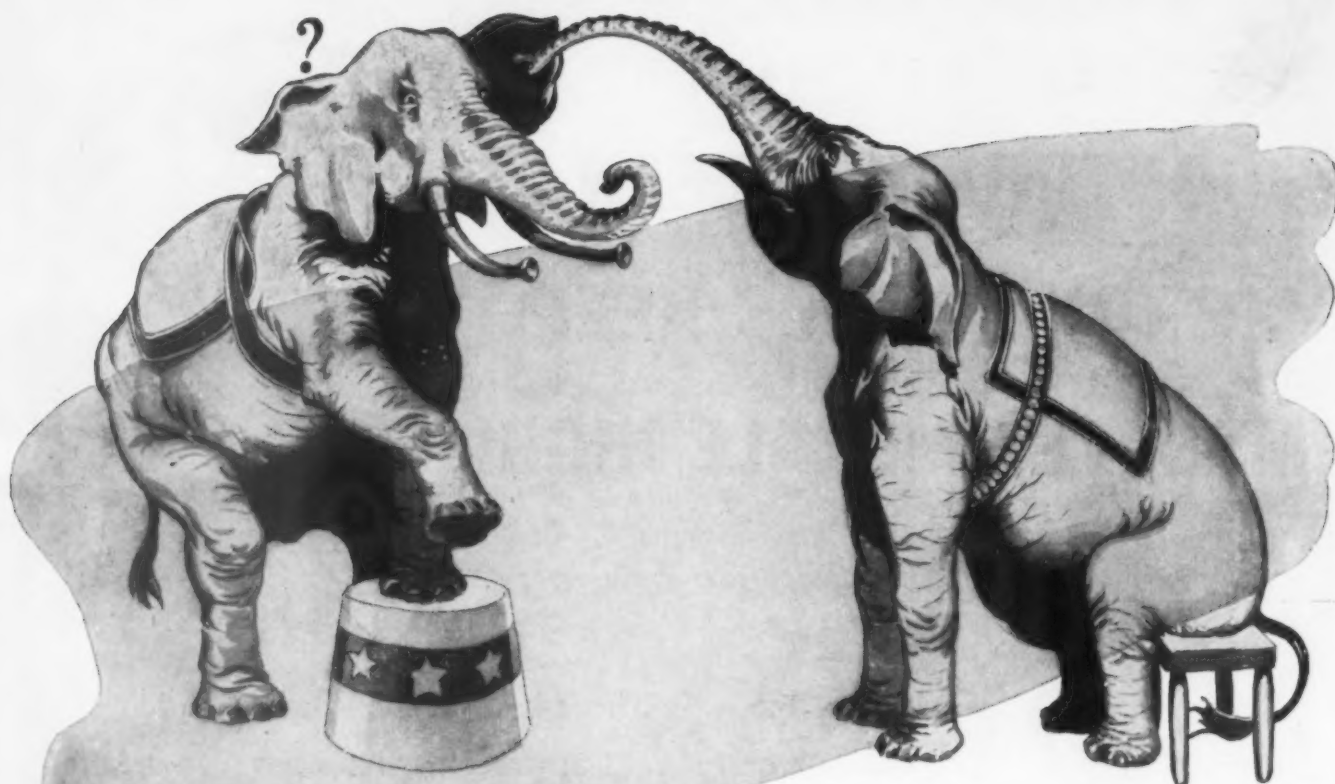
Division of Opelika Textile Mills, Inc., furnishers of washable service apparel and towels to the linen supply industry.

Write

for free booklet telling how Servilinen can help build your business. Linen Supply Association of America, Dept. P-6, 22 West Monroe St., Chicago 3.

Servilinen

The Quality Service Obtainable from Members of
LINEN SUPPLY ASSOCIATION OF AMERICA



YOU LEARN A LOT IN A CENTURY

We have . . . especially about boxes and crates, because we have been designing and manufacturing them for nearly a century.

Today we are proud to offer you **SUPERSTRONG** . . . the crowning product of our long experience. Here you have a complete line of tough sturdy shipping containers - custom built to your product to give maximum protection at lowest possible cost.

Send out a call for a **SUPERSTRONG** man - it will pay you to get the full **SUPERSTRONG** story.



WIREBOUND BOXES and CRATES
WOODEN BOXES and CRATES
CORRUGATED FIBRE BOXES
BEVERAGE CASES
STARCH TRAYS
PALLETS

RATHBORNE, HAIR AND RIDGWAY BOX CO.
1440 WEST 21st PLACE • CHICAGO 8, ILLINOIS

A BEARING and A BREWERY

or - Why a Great Bearing
Emergency is often a
Bearing Specialist's
Routine Service!



● The brewery was on the phone and from the urgent, almost panic note in the Superintendent's voice, I knew they were in real trouble. Their deep well pump had broken down—a bearing failure. No repairs possible, it was simply through and had to be replaced. And a continual, large volume supply of water to a brewery, as in most processing plants, is an absolute *must*! Without water, thousands of dollars worth of mash would go down the sewer. You'd have thought I was gifted with supernatural powers and had the help of an A-I Genii when I said, "Sure we stock that bearing. I'll get it right out to you."



● When I got to the brewery it was touch-and-go. They'd even had the fire department lay down lines, connecting their storage tank to city hydrants on the bare chance that the pressure would give them enough water to keep going. Only an hour's supply of water was in the tank when we started to install the new bearing.

● With the installation completed in a short time, and the gauge on that storage tank showing a good supply of water, the sighs of relief could be heard all over the place! Simple you say? Sure, but only if you know that your Anti-Friction Bearing Distributor solves the bearing replacement problems of all industry. Get to know him and the lines he carries. Emergencies always happen at the wrong time and he is ready to help you.

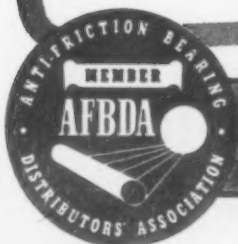


A word about the ANTI-FRICTION BEARING DISTRIBUTORS' ASSOCIATION

A group of BEARING SPECIALISTS, working with and for, every segment of industrial America—maintaining the highest standards of business ethics and occupying a place of esteem in industry for the services they render—banded together to further increase their usefulness to industry.

"Installation, Maintenance and Removal of ANTI-FRICTION BEARINGS"—

This 20-page booklet tells you the how and why of caring for all types of bearings. Practical ideas on all phases of bearing life. Ask for it now!



THE ANTI-FRICTION BEARING DISTRIBUTORS' ASSOCIATION
1900 EUCLID AVENUE • CLEVELAND 15, OHIO

Everywhere—hats are off to the **SIZE-MARK** on PARKER-KALON Socket Head Cap Screws



TOOL CRIB BOSSES

welcome it because sorting is made so much easier and quicker . . . a glance at the head of a P-K Screw immediately tells you its size.



ASSEMBLY WORKERS

are all for it because sizes are always issued correctly. The Size-Mark prevents delays, helps them make better time on the job.



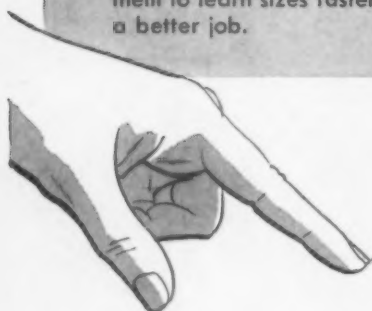
APPRENTICES

cheer the Size-Mark on P-K Screws because it protects them from errors . . . enables them to learn sizes faster and do a better job.



SALES MANAGERS, TOO

hail the Size-Mark on P-K Screws. It's a definite sales advantage because it saves time for customers' service men in reassembly.



NEW Size-marked Engineered Hex Keys

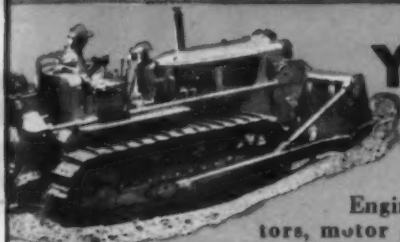
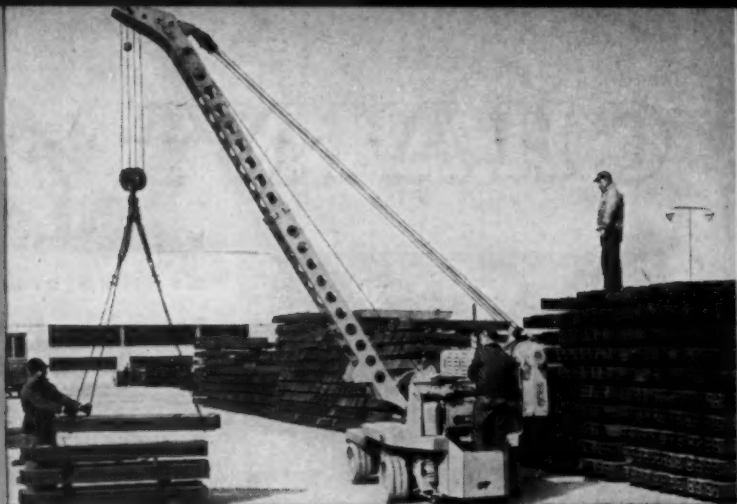


And the GEAR GRIP† prevents slipping — even when fingers are oily! Send for samples . . . see for yourself how P-K* Size-Marked Socket Head Cap Screws can put your product ahead, assembly-wise and sales-wise. Parker-Kalon Corporation, 200 Varick Street, New York 14, N. Y.

Key size, and corresponding socket set and cap screw sizes, are clearly stamped on the arm of Parker-Kalon Engineered Hex Keys. P-K Hex Keys are again available in attractive, compact steel cases with easy-to-use key island (Set No. 111), and in durable plastic pouches (Set No. 45).

PARKER-KALON* *cold-forged* SOCKET SCREWS

SIZE-MARKED SOCKET HEAD CAP SCREWS • GROUND THREAD SOCKET SET SCREWS • FLAT HEAD SOCKET CAP SCREWS
STRIPPER BOLTS • PIPE PLUGS • HEX KEYS • AVAILABLE EVERYWHERE THROUGH ACCREDITED DISTRIBUTORS
*TRADE MARKS REG. U.S. PAT. OFF. †U.S. DESIGN PAT. NO. 126,409



YALE COST-CUTTERS give "Caterpillar" a lift

Engines, tractors, motor graders, earth-moving equipment—Caterpillar Tractor Co. makes them all. Acres of components for these powerful machines fill its Peoria yards and storage areas. Everywhere you look material is on the move. For machining departments and assembly lines must be kept "well fed" to maintain output at a high level, economically.

To help assure top efficiency in storage and production operations, "Caterpillar" relies on Yale High Lift Fork Trucks and Crane Trucks. These versatile material handling tools safely lift, transport and stack tremendous

tonnage per day. Large single units, sub-assemblies, and bins of small parts—all are handled with substantial savings in time, effort, and money.

Yale Material Handling Machinery can go a long way in giving you the manufacturing economy so vital in today's competitive markets. Regardless of the size of your business, the Yale line of trucks, hoists and scales is so diversified and adaptable that selection for your particular needs is easy. Let our nearby representative guide you to greater handling efficiency and lower costs. Refer to your telephone book or write direct to Yale.



THE YALE & TOWNE MANUFACTURING CO.

Roosevelt Boulevard

Department K-37

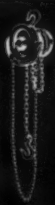
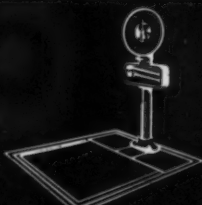
Philadelphia 15, Pa.

K-24



YALE

TOOLS THAT KEEP
INDUSTRY "ON THE MOVE"



SCALES — Industrial — HOISTS — Hand and Electric — TOWERS — Hand Lift — Electric — Gasoline — Diesel

CHAINS *from* STOCK

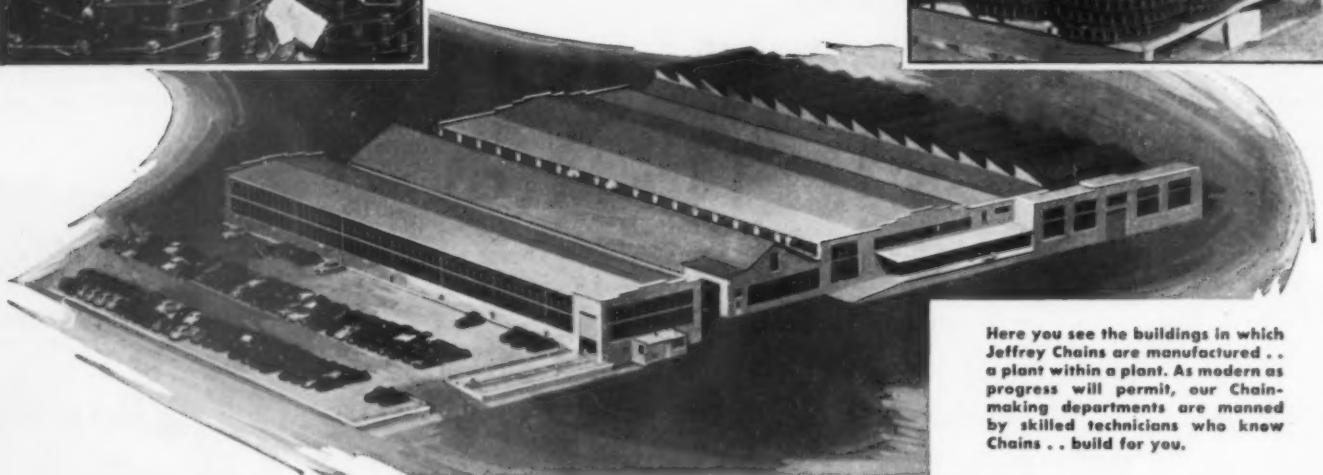
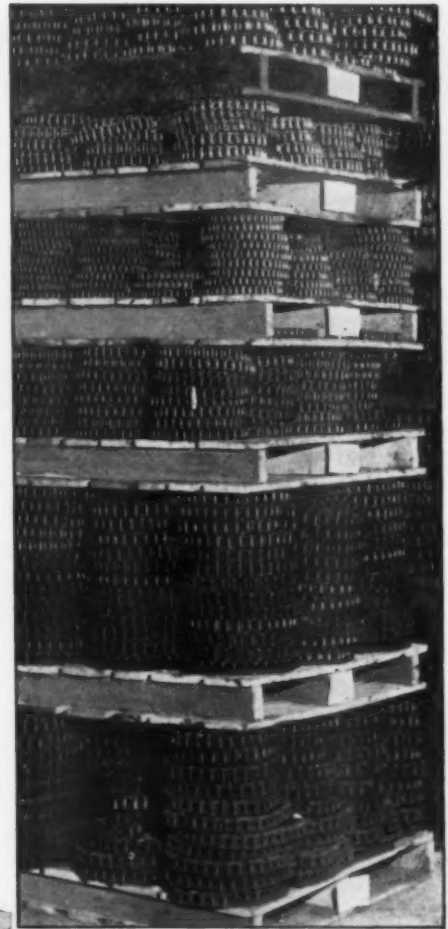
Popular types and sizes available at once from Columbus—from our distributors in all industrial centers

NEED CHAINS? We can ship immediately from our large stock here at home or you can contact any one of our authorized Stock-carrying Distributors, strategically located throughout the United States to better serve your needs.

Our recently-enlarged Chain-making establishment (see photo below) is fully equipped with new high-speed tools . . . every modern facility to make chains scientifically better . . . faster.

A large assortment of Sprockets, Gears, Pulleys, Babbitted Bearings and other Transmission Items are also available for prompt shipment, as well as a line of Spiral Flights, Belt Idlers, etc.

We will be glad to take care of your requirements . . . will handle those "Ship At Once" requests promptly. May we hear from you?



Here you see the buildings in which Jeffrey Chains are manufactured . . . a plant within a plant. As modern as progress will permit, our Chain-making departments are manned by skilled technicians who know Chains . . . build for you.

THE JEFFREY

MANUFACTURING COMPANY Established 1877

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Chicago 1
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Complete Line of
Material Handling,
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full branch tees

...  1/2 INCH THROUGH 30 INCHES



TO MARK PROGRESS

ANOTHER IMPORTANT DEVELOPMENT in the LADISH LINE of

Controlled Quality FITTINGS

THE COMPLETE FITTINGS LINE
PRODUCED UNDER ONE ROOF...ONE RESPONSIBILITY

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To increase safety, ease of installation and welding accessibility... Ladish Welding Tees have Full Branch Outlets with identical center-to-end dimension of branch and run as is required for each size *through 30 inches*. Scientific metal distribution... pioneered by Ladish... adds extra protection by equalizing stress over the entire fitting and assuring maximum strength in every cross section.



4 New Stanley Electric Tools

**Designed and styled
for today's market**

Tried and tested . . . because, like all Stanley Electric Tools, these new designs have had to prove themselves on tougher assignments than you'll ever give them, proved their stamina in the hardest kind of proving tests. In the hands of your workmen they will reduce cost and improve quality through modern styling for easy operation. See these new electric tools at your industrial distributor's. Stanley Electric Tools, 485 Myrtle St., New Britain, Conn.

STANLEY

Reg. U.S. Pat. Off.

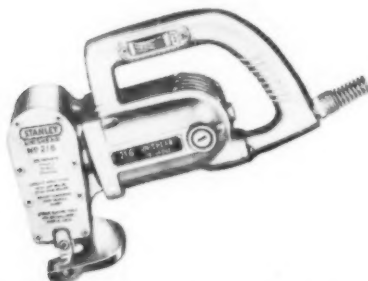
**HARDWARE • TOOLS • ELECTRIC TOOLS
STEEL STRAPPING • STEEL**



No. 164 ELECTRIC DRILL . . . 1/4" in steel, 3/4" in hardwood. This model, with spade handle, and the No. 166, with pistol grip handle, are production drills. They'll bore through 1" tool steel in a half minute flat. Lightweight diecast aluminum housing fully polished, ball bearings, heavy duty spindle and gears, trigger type switches and Jacobs 3-Jaw Chucks




No. 166 ELECTRIC DRILL . . . 1/4" in steel, 3/4" in hardwood. Same as No. 164 above but with pistol grip handle.



No. 216 UNISHEAR . . . Streamlined, inside and out, with minimum number of parts, for easier handling, for more work and higher speeds. Shears sheet metal up to 16 ga. hot rolled steel at speeds to 20 ft. per minute. Cuts stainless steel up to 18 ga. Easier to handle than snips, needs only guiding. Blade action feeds in work. Cuts straight lines, curves, angles, notches inside or outside, to the hairline. Easy blade adjustment. Two position handle for comfortable use in any position. Slide operated switch.



No. 212 UNISHEAR . . . Similar to No. 216 (above) except capacity is 12 ga. Hot rolled steel at speeds to 12 ft. per minute. Can also cut 14 ga. stainless steel. Handle designed for comfortable use in any position. Trigger switch. Cradle for converting to bench machine and circular cutting attachment are available for both these new model Unishears.



Are You Paying for Castings You Never See?

Outmoded Methods Run Up Costs . . . BS&B-WISE FOUNDRIES SAVE YOU MONEY

When a foundry flask shifts and spoils the cast, the castings buyer often pays. Rejects cost the foundry just as much to prepare and pour as the perfect cast. The waste may be passed along to you in higher prices.

But the modern foundry, like those equipped with BS&B Fabricated Steel Flasks, keeps cost to the minimum . . . Steel bushings help do away with shifting. BS&B Flasks stand up for years against the knockabouts of heavy use . . . tomorrow's castings will be as precise as today's. That means economy for you, the buyer!

Check today with your foundryman. "BS&B-wise" foundries offer uniform quality and faster production. They save you money. For Complete information and the names of progressive BS&B-equipped foundries near you, write today to

BLACK, SIVALLS & BRYSON, INC.

Section 9-88-6FF

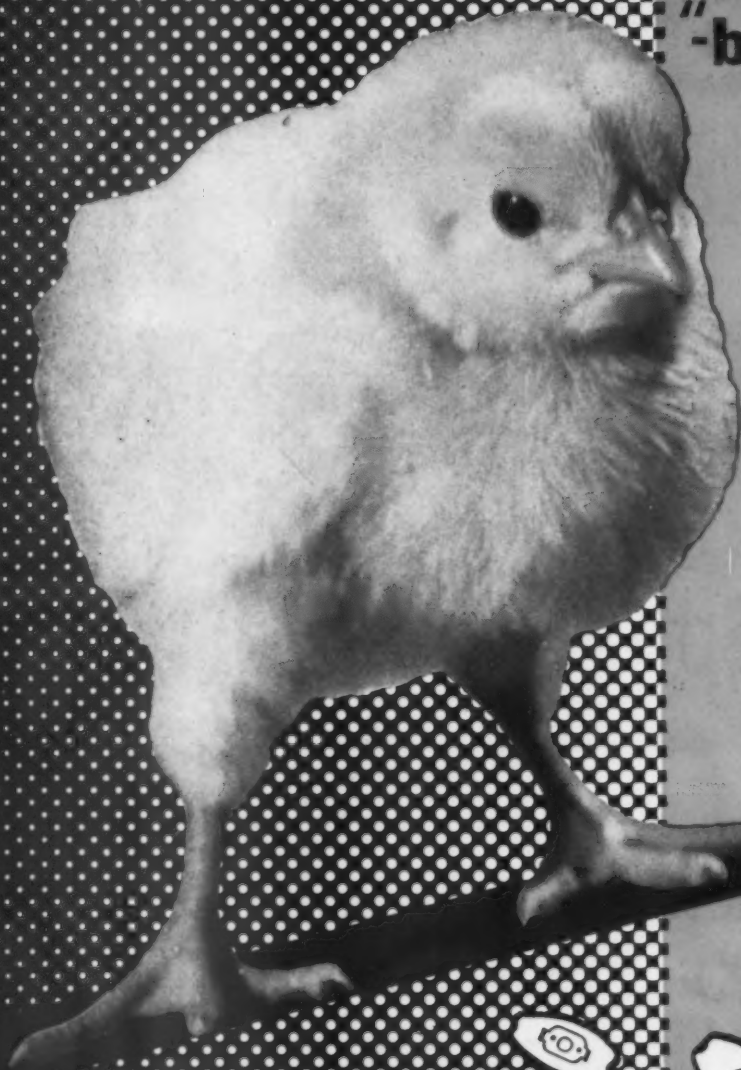
720 Delaware
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• OKLAHOMA CITY

BS&B
Fabricated Steel
FOUNDRY FLASKS

. . . for the Precision That Protects Your Profits



**"-but my order
is only
chicken
feed"....**

Not to us! Small orders for springs, samples, or experimental lots are made in special departments equipped through experience for just such service. Go to one of the plants below, when you need springs, in any amount.



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Manufacturing
COMPANY**
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**BARNES-
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6400 MILLER AVE., DETROIT 11,
and ANN ARBOR, MICH.

**DUNBAR
BROTHERS
COMPANY**
BRISTOL, CONN.

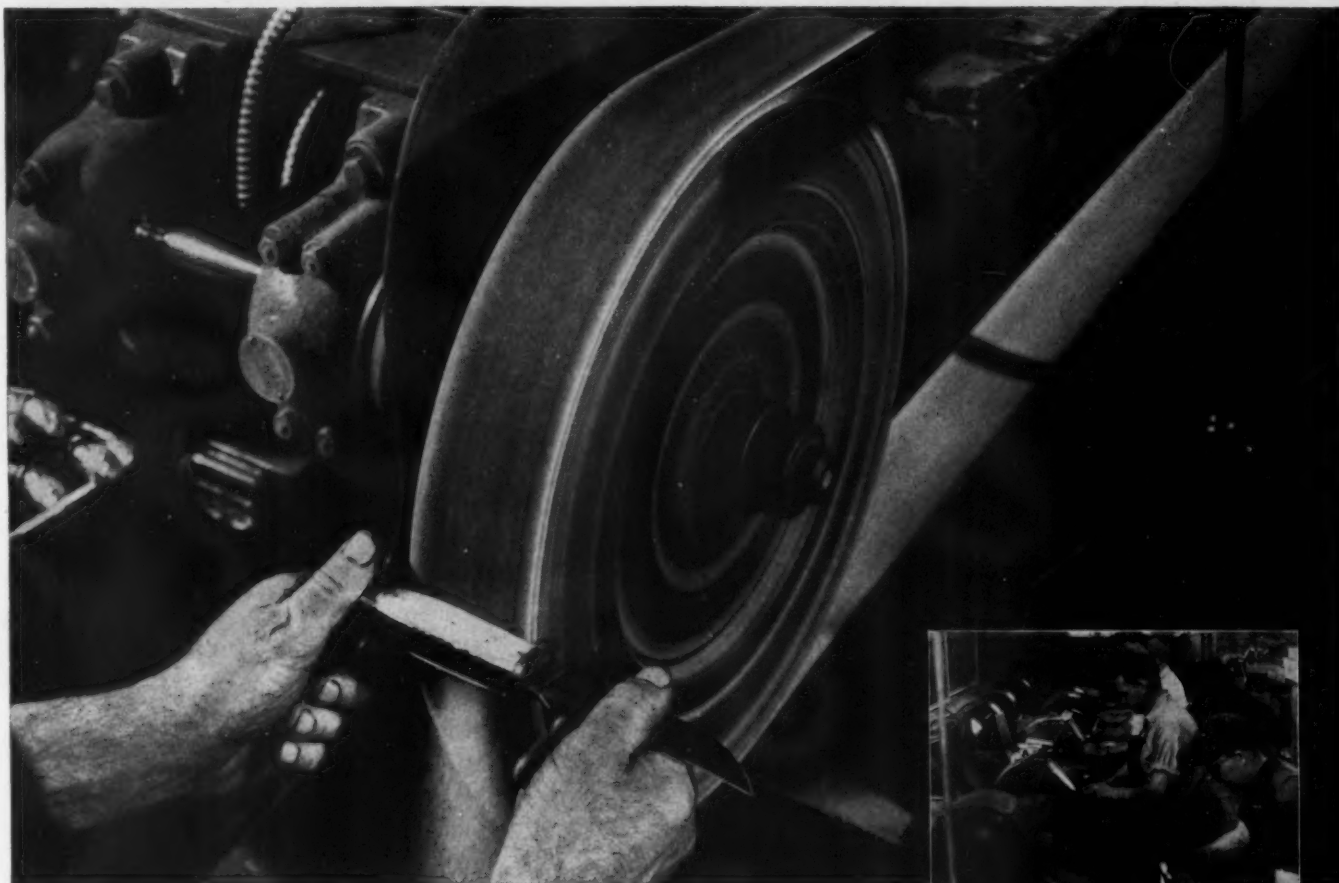
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**THE WALLACE
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CANADA



U.S. DIVISIONS OF
ASSOCIATED SPRING CORPORATION
AND CANADIAN AFFILIATE

CUTTING COSTS ON KNIFE FINISHING



RESINALL[®] METALITE[®] CLOTH BELT

*...finishes 6 different materials
in one operation*

The steel, brass, plastic, fibre, leather and aluminum in this hunting knife are all the same to the RESINALL METALITE Cloth Belt. Running over the proper Contact Wheel, it removes the stock, shapes the contour and does the final finishing job—a typical example of RESINALL METALITE versatility.

Whatever your material, there is a BEHR-MANNING coated abrasive belt to finish it quickly—profitably. Check with our engineers now and get the low-down on the latest in belt finishing.



RESINALL METALITE Belts on this battery of backstands and others have cut finishing costs for this manufacturer 50%.

Write today for our new illustrated Belt Finishing Brochure. It's full of the newest ideas and information to help you cut finishing costs.



BEHR-MANNING

TROY, N.Y.

Use **NORTON[®] abrasives** sharpening stones

BEHR-MANNING, Troy, N. Y., Dept. P-650

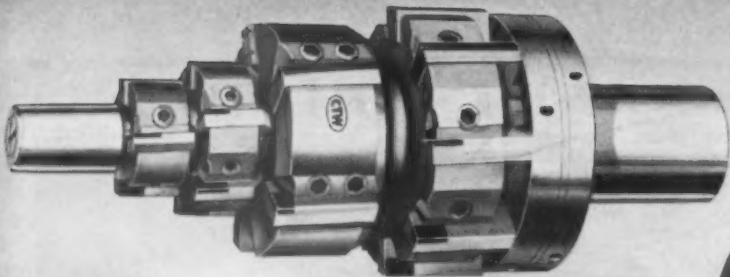
Please send me your Belt Finishing Brochure.

NAME _____ TITLE _____

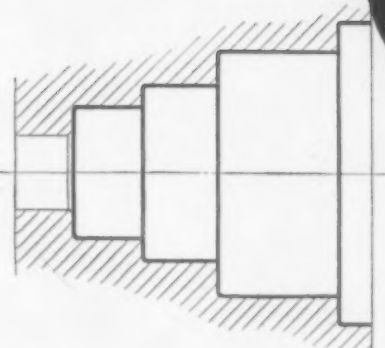
COMPANY _____

STREET _____

CITY _____ ZONE _____ STATE _____



Continental special cutter with carbide tipped inserted blades has a roller pilot which guides the tool as it finishes four concentric diameters and four shoulders. The drawing shows the cuts in heavy lines



CONTINENTAL DESIGNS THEM TO SUIT YOUR NEEDS EXACTLY

Those high production jobs that have to show a profit are everyday problems at Continental. The Continental Cutting Tool Division of Ex-Cell-O designs and manufactures all the special cutting tools that are used in the Ex-Cell-O Organization. Continental Tools of all types are used day after day on gruelling production work that must pass rigid inspection and must be done at a profit.

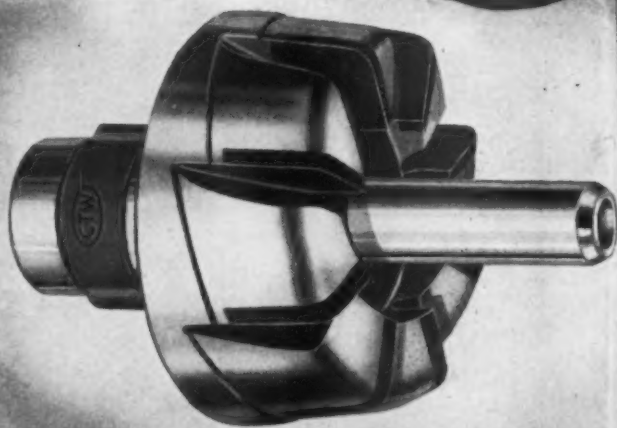
Whether the job calls for high-speed steel, cast alloys or carbides, Continental can supply the tools to suit the job *exactly*. The new Continental Tool Catalog shows hundreds of cutting tools, standard and special, and broaches. If you haven't received a copy write for one today on your company letter-head. And for special tools just send a tool print or a part print showing operations to be performed and ask for a quotation.

50-19

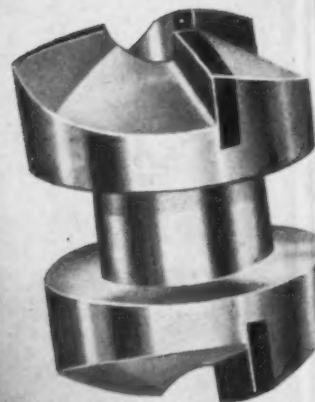
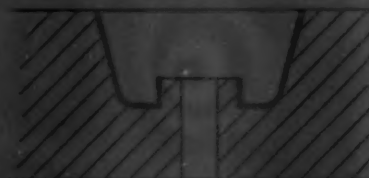
CONTINENTAL TOOL WORKS

Division of Ex-Cell-O Corporation
DETROIT 32, MICHIGAN

Need Special
**CUTTING
TOOLS?**



This special Continental tool taper reams, forms a radius and hollow walls. Operations are indicated in heavy lines in the drawing.



Continental double-end carbide tipped spherical seating cover used in a special machine for finishing two inside surfaces of automotive differential cases.



**Furnishing the exact
precision switch for unfailing
performance is the #1 job of**



MICRO SWITCH ENGINEERING

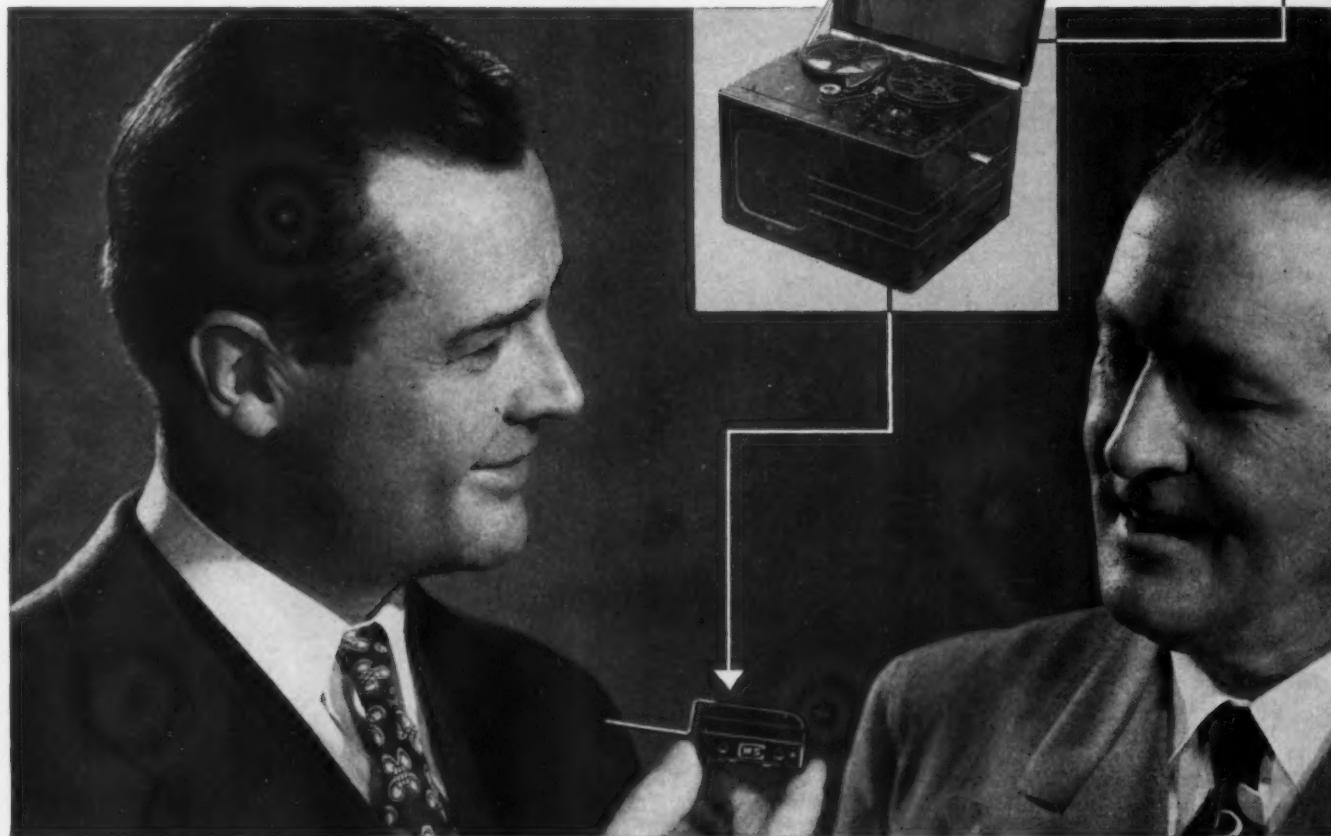
Few precision switch applications are more exacting than those of the tape recorder produced by a Mid-western manufacturer. The special requirement was for two small snap-action switches sensitive enough to serve as "forward" and "rewind" limit switches under delicate operating conditions—yet sturdy enough to function at all times without failure.

MICRO SWITCH ENGINEERING was called in, and—from the wealth of its unequalled experience, skill and vision—succeeded in specifying and providing precision switches so perfectly suitable that not a single performance failure has been reported!

Your product doubtless calls for precision switches of quite different characteristics than those cited here. We invite you to consult MICRO SWITCH ENGINEERING, however "different" your precision switch application may be. You will get the individually considered recommendation of the fine engineering staff that has already been responsible for the creation of more than 4600 different MICRO Precision Switches—each unsurpassed for long, dependable performance on its special job. Call or write MICRO SWITCH, Freeport, Ill., or any of our branch offices.

Branches: Chicago • New York • Boston • Cleveland • Los Angeles

Representatives: Portland • St. Louis • Dallas • Toronto



MICRO... *first name in precision switches*

All Ways Alike!

"Statistical Quality Control" goes
Mrs. Pod more-than-one better!

The original *Mrs. Pod*, unconcerned about specifications, delivers nature-molded pieces which, to the eye, need only look alike in appearance and size!

"Statistical Quality Control" goes much further. As a special production-improvement factor . . . and with the custom molder's press as its *pod*, each delivered part must fully comply with each and every required specification! Not only must parts look alike—they must be alike! . . . Size—shape—molding uniformity—precision placement of inserts— together with a multiplicity of inside and outside measurements . . . all, in *all* ways, must pass rigid tests before passing to the customer.

With "Statistical Quality Control" in force, few parts ever get the chance to develop an inferiority complex. The method raises the standard of an entire output and saves the customer the need and the cost of double inspections.

Whenever you are projecting a part—to be molded of plastic—and one that must toe the specifications line—call in a Consolidated sales engineer. Any one of our quickly reached offices is ready to apply experience, know-how and savings to your custom plastics problem.

(Please address Dept. K-6)

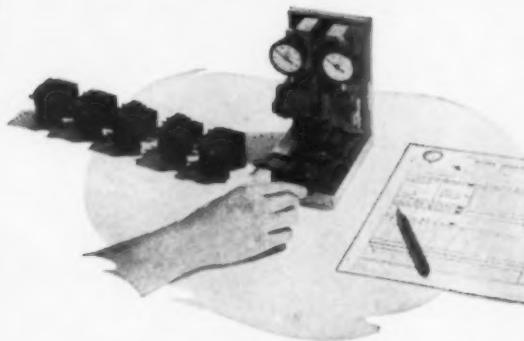
Consolidated Molded Products Corporation

Plant & Executive Offices: 309 CHERRY ST., SCRANTON 2, PA.

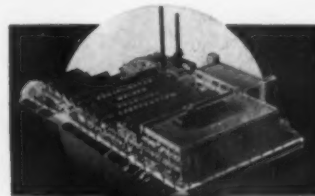
Branch Offices and Representatives in New York, Chicago, Detroit, Cleveland, Bridgeport, Philadelphia—and other principal cities



"STATISTICAL QUALITY CONTROL"
at Work!



The system, one of scientific sampling, is documented by regular timings, gauge readings, jig constructions, graph plottings. In the hands of Consolidated's skilled plastics technicians, "S. Q. C." can't help but insure you the kind of plastics production that makes for a strong custom-molding relationship.



A Million Dollars in Custom Molding Facilities to Guarantee "Your Blueprint in Plastic" . . . with Savings!

HIGHER TEMPERATURES • HIGHER PRESSURES

SIZE-FOR-SIZE, AT NO EXTRA COST

New FORGED STEEL VALVE

Here's the answer to your toughest pressure-temperature problems! It's the brand-new OIC Figure 1221, designed to take *higher* pressures, higher temperatures, tougher all-around operating conditions—with *no* increase in cost over its most popular competitors. It gives you a bonus of safety on your standard applications, and you needn't "step up" to more expensive valves to meet extra-high job ratings. You can *standardize* on the complete OIC forged steel line. You're in for a pleasant surprise when you check specifications of the new forged steel series, so don't wait. Call your nearest OIC distributor. *See this valve now!*

FIGURE 1221, shown right, comes in two standard trims—CH for oil or oil vapor at temperatures to 1000°F;

HCH for steam and other non-lubricating fluids to 850°F.

FORGED BODY, with wedge-guide machined in true relationship with bonnet joint for perfect alignment. Seat rings, of 13 Chrome stainless steel sealed tightly against body, keep out corrosive liquids, cut chemical action.

STEM, of 13 Chrome stainless steel, mates with a back-seating surface on bonnet, so valve can be re-packed under full pressure. Wedge is a one-piece forging of 13 Chrome or hardened stainless steel, depending on trim.

OS&Y construction protects stem-threads from fluids and hot internal temperatures. Easy lubrication.

ALL METAL SECTIONS are extra-heavy to exceed recognized construction codes. Grain-pattern of forgings adds strength, provides safety, reduces wear.

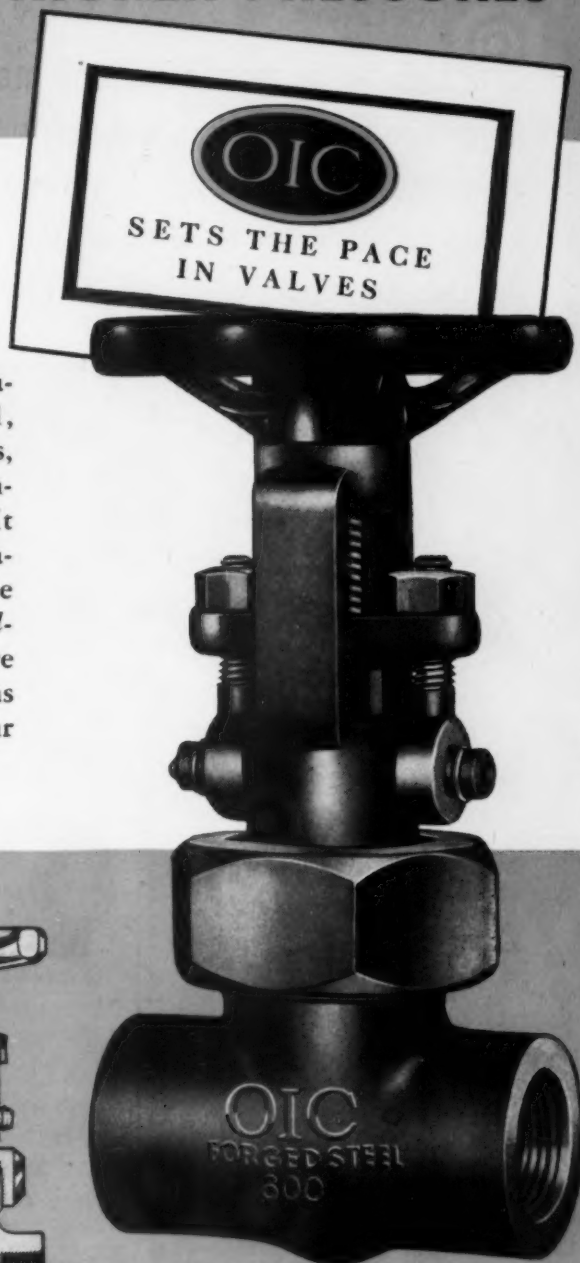
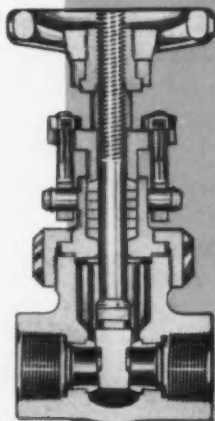


Fig. 1221



Fig. 1021



Fig. 1320

THERE ARE 262 DIFFERENT VALVES in the OIC forged steel line. It's the *longest* line ever presented to the trade at one time. Shown at left are two more gate valves—inside screw, Fig. 1021, and flanged end, bolted bonnet, Fig. 1320. But whether you need gates, globes, angles, or checks, be sure to investigate the *complete* OIC forged steel series. Write immediately for free descriptive material.

OIC
VALVES

FORGED STEEL • IRON
CAST STEEL • BRONZE

THE OHIO INJECTOR COMPANY
110 PINE STREET, WADSWORTH, OHIO

9-410-5

Said Mr. Winniger* to Mr. Hamilton†

* Typical Manufacturer

† New Britain Sales Engineer

You bet, we're worried about manufacturing cost! Competition is cutting prices, wages are out of sight, and we have a pension plan staring us right in the face. But we don't operate a shop full of obsolete machines, our staff is fairly modern. Cutting costs further isn't going to be an easy matter.

Speaking of cutting costs, here's a piece that used to be turned out on three machines in a shop as modern as yours.



You sold a New Britain to replace the other machines?

Yes, it's a job that involves boring thru a seven inch piece. The other machine didn't have enough throw on the tool slide to bore thru, so the piece had to be re-chucked in a second operation. We go right thru in the one setting. Work of this type is handled on our standard machine eliminating special expensive holders and tooling.



Of course that saved a lot of handling and idle time.

It saved a whole machine and increased production besides. We also finish ream in the sixth position which eliminates a third boring operation leaving only a honing operation to bring the bore to within .0003 tolerance and surface finish.



A job like that interests me particularly—because it isn't some tricky special piece, but the sort of work you might find in any shop. When you can find a way to make a big cost reduction on this sort of part, you have something worth talking about. Have you got one of your New Britain Cost History sheets that gives all the dope on it?

We'll send it to you in a few days. Meanwhile, perhaps you'd like to have me do some checking on pieces you're turning out now, or getting ready to make.



Want to help me with my worrying, eh? Okay, I'll just take you up on that—Wait'll I phone Joe, and have him take you thru the shop.



Call on your New Britain Sales Engineer to help you find profit opportunities in metal cutting. Meanwhile, let us send you "It Can Be Done" with up-to-date cost histories on this and other specific pieces.



NEW BRITAIN MODEL 695
SIX SPINDLE AUTOMATIC
CHUCKING MACHINE

NEW BRITAIN

Automatics

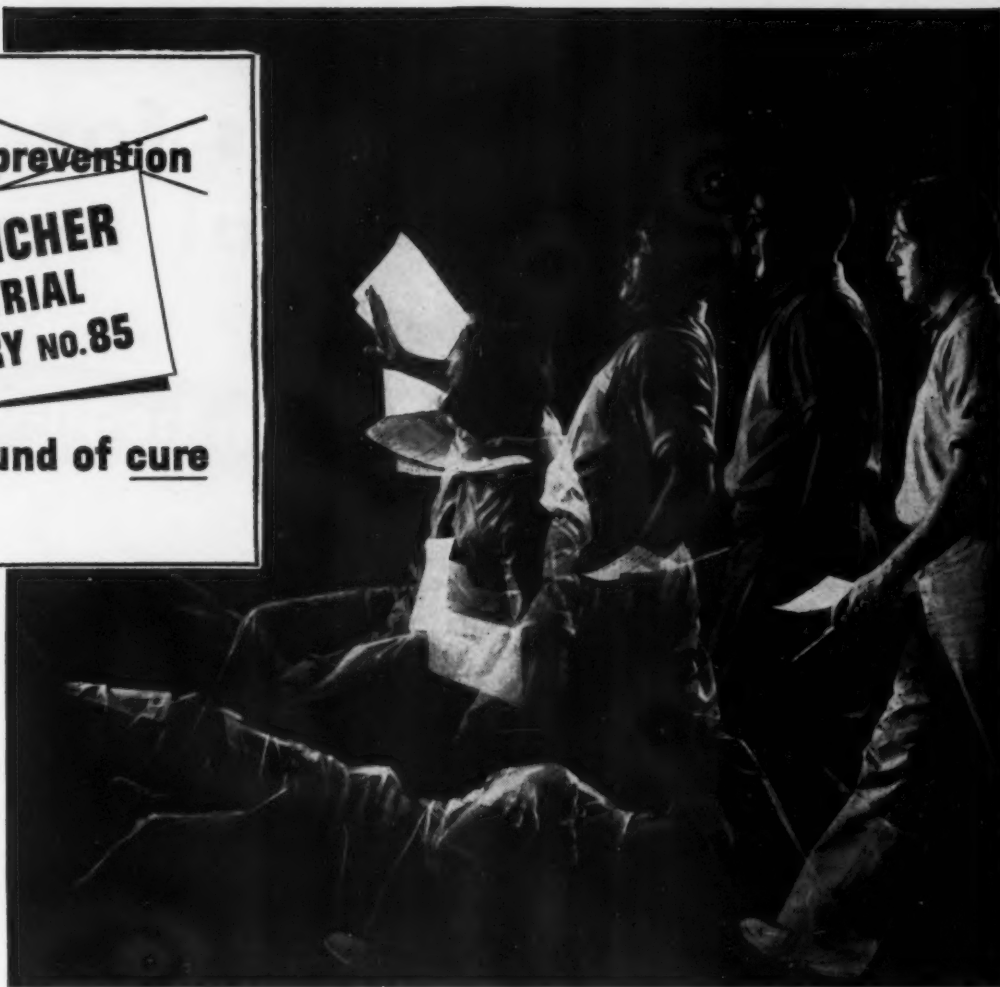
THE NEW BRITAIN MACHINE COMPANY
NEW BRITAIN-GRIDLEY MACHINE DIVISION
NEW BRITAIN, CONNECTICUT

150HB1

An ounce of prevention

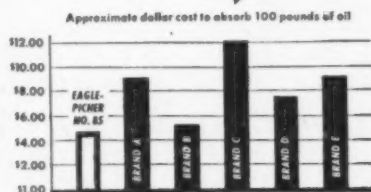
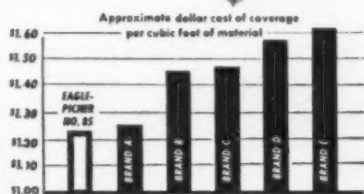
**EAGLE-PICHER
INDUSTRIAL
FLOOR DRY NO. 85**

is worth a pound of cure



***Eagle-Picher Industrial Floor Dry No. 85
is tops for efficiency and economy!***

Eagle-Picher's remarkable new Industrial Floor Dry No. 85 is a granular mineral compound having tremendously high absorptive properties for oil, grease, kerosene, water and other liquids. Chemically inert, and non-combustible, it is insoluble in such liquids. Its light weight provides highest possible floor coverage, and it may be easily applied by hand, shovel or mechanically. It retains its granular form even when saturated with liquids, and retains its effectiveness for *longer* periods. Examine the results of comparative tests of Eagle-Picher Floor Dry against five other leading compounds. Or better yet, try it in your own plant—you'll get more for each dollar spent!



The Eagle-Picher Company

Since 1843

GENERAL OFFICES: CINCINNATI (1), OHIO



THE EAGLE-PICHER COMPANY
Dept. P-6-50, Cincinnati (1), Ohio

Gentlemen: Please send me more information about Eagle-Picher Industrial Floor Dry No. 85.

Name _____

Address _____

City _____ Zone _____ State _____



products for every industrial need...

from beginning...



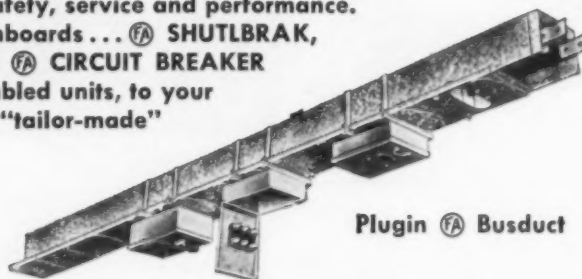
ⓕ Klampswitchfuz

... are built from standard, pre-assembled units, to your specifications ... making final assemblies "tailor-made" without destroying the savings and advantages of standardized equipment.

From sub-station to switchboard to machines, power will follow the path of least expense via

ⓕ KLAMPSWITCHFUZ and ⓕ CIRCUIT BREAKER

Each of the ⓕ Switchboards ... ⓕ SHUTLBRAK,

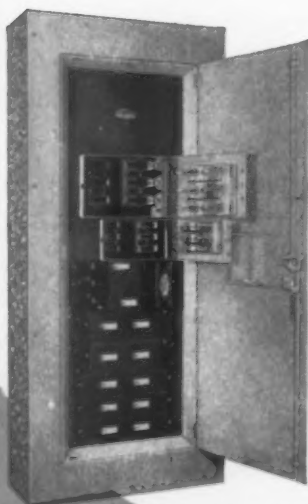


Plug-in ⓕ Busduct

FEEDER ⓕ BUSDUCT. This efficient distributor of heavy current is designed to team-up with **PLUGIN ⓕ BUSDUCT** to give your electrical distribution system greater flexibility and economy. By providing convenient plug-in outlets every foot of the way, there's always a ready power source for new or present equipment anywhere along the production line ... just plug-in anywhere ... anytime ... and let 'er roll.

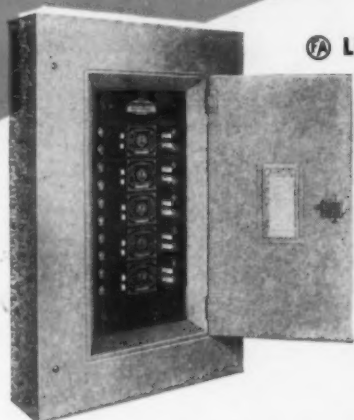
Another ⓕ Product that bridges the power gap from power source to machines is the ⓕ **FEEDER PANELBOARD**. This compact panelboard is unexcelled for the distribution of current through assemblies of standardized switching units, either pull-out or hinged pull-out types.

A variety of dependable panelboards for light and power distribution are manufactured by ⓕ. These include the ⓕ **LNTIP** type



ⓕ Feeder Panelboard

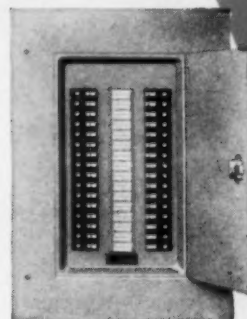




ⓕ LNTIP

with tumbler switch and plug fuse branches and "sequence bussing" for better balance of load... ⓕ THERMAG or DUBLBRAK CIRCUIT BREAKER types for automatic, fuse-less circuit protection... ⓕ PULFUZSWITCH for disconnect service on lighting and feeder branches and power circuit branches...

ⓕ COLUMN TYPE to mount between the flanges of "H" columns and save space on the job... and ⓕ DUSTITE for sealing out the hazards of carbon black, coal or coke dust, grain dust and other hazardous dust conditions.



ⓕ Thermag



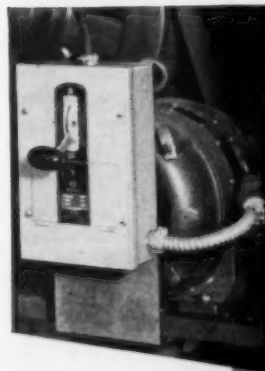
ⓕ Column Type



ⓕ Dustite

At the end of the power line, ⓕ SHUTLBRAK SWITCHES are ideal as individual operating switches for motor disconnect. They are front operated, horsepower rated industrial switches with quick make and break operation and interlocking fuse doors that permit access to fuse compartment only when switch is "off." (A special release is provided for authorized persons.)

ⓕ Shutlbrak Switch



So all along the production line, ⓕ has a product for your industrial needs... plus a coast-to-coast organization of Sales Engineers who will gladly help you with your planning, furnish latest engineering data on ⓕ PRODUCTS or render a complete survey and report on your individual problems... all without obligation to you.

Talk over your next electrical problem with your ⓕ REPRESENTATIVE (he's listed in Sweet's)... or, if you prefer, write direct to Headquarter's Office for information on ⓕ PRODUCTS.

...to end!



Frank Adam Electric Co.

ST. LOUIS 13, MISSOURI

Makers of BUSDUCT • PANELBOARDS • SWITCHBOARDS • SERVICE EQUIPMENT • SAFETY SWITCHES • LOAD CENTERS • QUIKHETER



you slash
scrap loss
with
Asarcon 773
bronze bars

By specifying ASARCON 773 *continuous-cast* bronze in the rod or tube length you need . . . you cut individual parts to length with practically no scrap loss. Stock the right lengths for maintenance or production . . . then no matter what your cut-off specification, there'll be a minimum of wasted short ends.

ASARCO *continuous-cast* bronze has superior physical properties (always meets SAE 660 specifications) . . . no porosity . . . no dirt or dross inclusions . . . eliminates rejects or losses due to metallurgical defects. And ASARCO *continuous-cast* bronze is easily machinable. In one instance the use of ASARCON 773 increased the life of a broach by six times.

Prove these savings to yourself! Cut chucking and set-up time by getting the longer lengths.

ASARCON 773 bronze is *continuous-cast* in cross-sections $\frac{1}{2}$ " to 5", cored or solid . . . lengths to 105". Rods and bars for gears, shafts, and other machine parts . . . tubes for sleeves, bushings, bearings, or liners . . . 215 standard sizes are stocked for exacting production requirements . . . plus bars or tubes with ridges or splines made to order.

Asarco's technical representatives can tell you how to use Asarco *continuous-cast* products at a profit. Write for the name of your nearest ASARCON distributor.

Territories available for qualified distributor organizations. Write . . .

American Smelting and Refining Company

Perth Amboy Plant, Barber, New Jersey

JUST A FEW OF THE MANY
NEW Starrett
PRECISION TOOLS

described and illustrated in the latest
STARRETT NEW TOOLS BOOKLET
If you buy or use tools, you need this important supplement to the big Starrett Catalog.
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Remember!
All Starrett
Tools
Excell



**STARRETT UNIVERSAL
DIAL BENCH GAGE**
With Sliding Table and Fine
Adjustment



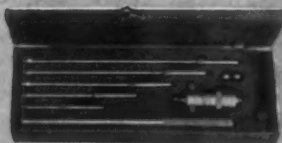
**STARRETT
VERNIER HEIGHT GAGE**
With Slotted Base Permitting
Measurements from Base Surface.
Range 0 to 6 inches.

**ALL FOUR WITH STARRETT
NO-GLARE "SATIN CHROME" FINISH**



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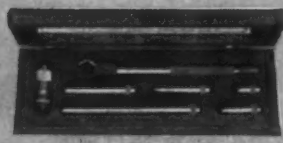
**MICROMETER
CALIPER**
1" Capacity, Tapered Frame,
Sycamore Case



No.
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**INSIDE
MICROMETER**
With Solid Rods

A Choice of Two Excellent Inside Micrometers — Two Different Types to
Meet Your Requirements



No.
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**INSIDE
MICROMETER**
With Tubular Rods

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**MICROMETER
DEPTH GAGES**

A Complete Range of Micrometer Depth Gages with 2 1/2, 3, 4
or 5 inch Bases

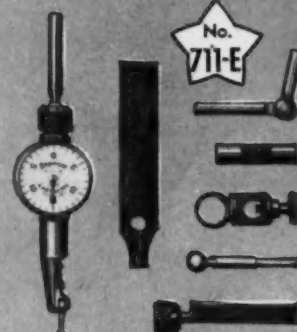


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653

**STARRETT
DIAL COMPARATOR**
With Fine Vertical Indicator
Adjustment



No.
711-E

**STARRETT "LAST WORD"
TEST INDICATOR**
With Universal Friction Holder,
Universal Shank and many useful
attachments



No.
995

**STARRETT UNIVERSAL
PRECISION GAGE**
(Patented)
With Fine Adjustment, Offset
Foot, Scribing Attachment, In-
built Level and many other Ver-
satile Features

TRADE MARK
Starrett

REG. U. S. PAT. OFF.

STANDARD OF PRECISION

Buy Through Your Distributor

Mechanics' Hand Measuring Tools and Precision Instruments
Dial Indicators • Steel Tapes • Precision Ground Flat Stock
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THE L. S. STARRETT CO., ATHOL, MASS., Dept. "P"

Please rush my free copy STARRETT NEW TOOLS BOOKLET describing
the many new Starrett Tools.

Name

Position

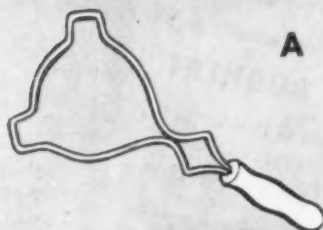
Company

Address

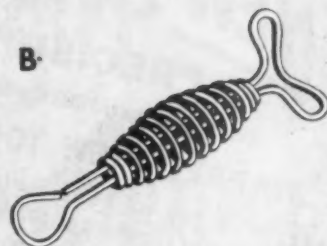
City.....Zone.....State.....



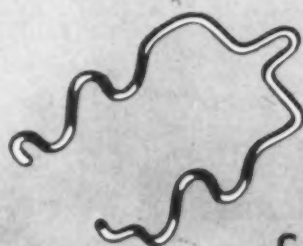
Guess HOW MANY OPERATIONS
IN THESE WIRE FORMS



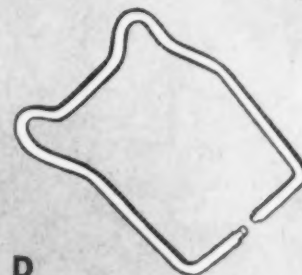
A



B



C



D

HOW TO TAKE THE

Guesswork

OUT OF WIRE FORMS

GUESSING the number of forming operations needed to make a wire form can be fun . . . but paying for them is a different matter. Particularly if the item must be produced in large volume and sell at dime-store prices.

The answers to the problems above are (a) 1; (b) 4; (c) 3; and (d) 1. The answer to *your* problem in wire forms is something that Wickwire's engineers will be happy to figure out. There won't be any guesswork and the job may be easier than you think. For our formed wire specialists have a knack of reduc-

ing forming operations by setting up special jigs or developing an item to a four-slide "feed and form" proposition.

To get the money-saving short cuts which Wickwire customers enjoy, tell us what you need . . . then learn first hand about Wickwire service and satisfaction. There is no obligation and it may result in a worthwhile reduction in your production cost.

Send for our free book, "Springs and Formed Wires." It's full of valuable data about spring selection and performance.



WICKWIRE SPENCER SPRINGS

A PRODUCT OF THE WICKWIRE SPENCER STEEL DIVISION • THE COLORADO FUEL AND IRON CORPORATION

SPRING SALES OFFICE & PLANT—2 New Bond St., Worcester 6, Mass. • EXECUTIVE OFFICE—500 Fifth Ave., N. Y. 18, N. Y.

SALES OFFICES—Boston • Buffalo • Chicago • Denver • Detroit • New York • Philadelphia

PACIFIC COAST—The California Wire Cloth Corp., Oakland 6, Cal.

Other Quality Wickwire Spencer Products include: Wire, Wire Rope, Metal Conveyor Belts, Chain Link Fence, Industrial Wire Cloth, Poultry Netting, Hardware Cloth, Insect Wire Screening, Welded Wire Fabric for concrete reinforcement.



A complete line—
DISSTON BITE-RITE FILES
from a single good source—
YOUR LOCAL DISSTON
INDUSTRIAL DISTRIBUTOR



DISSTON[®]

...TOOL-MAKER'S TOOL MAKER

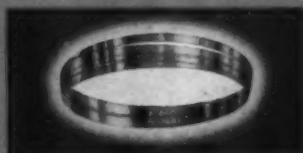


Thousands of dozens of files are used annually right in Disston plants, in the regular production of other fine Disston Tools. You could have no stronger proof that Disston Bite-Rite® Files are able to do the toughest kind of high-precision work, within rigid cost limits. *That's what Disston makes them for!*

Others in all lines of industry are likewise guarding quality, speeding schedules, and economizing, by using Disston Bite-Rite Files. *Disston Skill* makes each shape and cut precisely uniform. And *Disston Service* is ready to help you get every last penny's worth of good work out of Disston Files . . . and out of any other Disston Tools you buy.



For there is a qualified Disstoneer available to analyze operations for you, and consult with you on applying all Disston Tools most efficiently on any of your work. *Call for a Disstoneer to help you lick the jobs that lick the average tools!*



DISSTON METAL-CUTTING BAND SAWS
You can get the correct types from the Disston line—Hardened Throughout and Hard Edge Flexible Back (in Regular and Buttress Tooth patterns).



DISSTON HACK SAW BLADES
For a wide variety of machine and hand metal cutting operations.
IN THESE TYPES: High Speed Di-Met Chrome® Dura-Bit® • Reg. U.S. Pat. Off.



HENRY DISSTON & SONS, INC.

633 Tacony, Philadelphia 35, Pa., U. S. A.
In Canada, write: 2-20 Fraser Ave., Toronto 3, Ont.

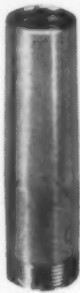
NEW PRODUCTS DATA SHEET

Subject: New products made from Carpenter Stainless No. 20, previously available only in cast form known as Durimet 20. The alloy's wrought forms, such as bars, strip and tubing developed by Carpenter, have resulted in many new and improved products such as those described here.

Outstanding Characteristics of "No. 20": Forms Available:



18-8



No. 20

Highly resistant to the corrosive effects of many acids and their fumes, No. 20 has been found to increase equipment life from 2 to 20 times. Acids handled by No. 20 include sulphuric, nitric, formic, acetic and many others, as

well as corrodents such as copper sulphate, lead nitrate, sodium phosphate, etc. The part shown here is used in a process involving sulphuric acid.

from Alloy Tube Division
The Carpenter Steel Co.
Union, N. J.

TUBING standard sizes and gauges from $\frac{3}{8}$ " through $2\frac{3}{4}$ " O.D.

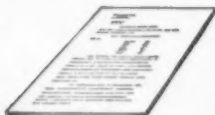
PIPE I.P.S. $\frac{1}{4}$ " through 2"

SHEET in these gauges: 24, 22, 20, 18, 16, 14 and 11

PLATE $\frac{3}{16}$ ", $\frac{1}{4}$ ", $\frac{3}{8}$ ", $\frac{1}{2}$ ", $\frac{5}{8}$ ", $\frac{3}{4}$ " with heavier plate or forgings made to special order

from The Carpenter Steel Co.
Reading, Pa.

BARS all standard sizes and finishes, **WIRE** .050" Rd. and larger, **STRIP** (Cold Rolled) .010" and heavier in widths up to 8", **BILLETS** for reforging.



New Technical Bulletin Available

Information on No. 20's corrosion resistance, workability and mechanical properties is in this 18-page bulletin. To get a copy, write on your company letterhead and ask for the Carpenter Technical Bulletin on Stainless No. 20.

THE CARPENTER STEEL CO., ALLOY TUBE DIVISION, UNION, N. J.

OTHER PRODUCTS NOW BEING MADE from Carpenter Stainless No. 20

Names of the manufacturers of these products will be supplied upon request.

CASTINGS



CLAD PLATE

FASTENINGS

FITTINGS

(screwed or flanged)



FORGINGS



HOSE

(flexible)

PUMPS



WELDING

ELECTRODES



WIRE—under .050" Rd.

WIRE CLOTH

VALVES

Many kinds of equipment such as heaters, coils, pickling tanks, fume ducts, etc. are made from Carpenter Stainless No. 20. Whatever your needs, we will try to put you in touch with the suppliers.

Carpenter



STAINLESS NO. 20

Licensed under patents of The Duriron Co., Inc.

BIG DIPPER

ONE BITE—and this world's largest power shovel—at the Hanna Coal Company's Georgetown, Ohio, mine—strips off enough overburden to fill the living-room of an average American home! The bucket holds 45 cubic yards—can be swung two-thirds of a city block to dump its load.

This one machine has all the complicated lubrication problems of a factory...requires a complete lubrication program to maintain peak efficiency. Socony-Vacuum was entrusted with this job...supplies the right grease for those cable sheaves...the right hydraulic oils for those giant jacks...the right lubricants for those swing, crowd, and crawler gears...other lubricants for all machinery inside.

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Illustration prepared with the cooperation of Marion Power Shovel Co.



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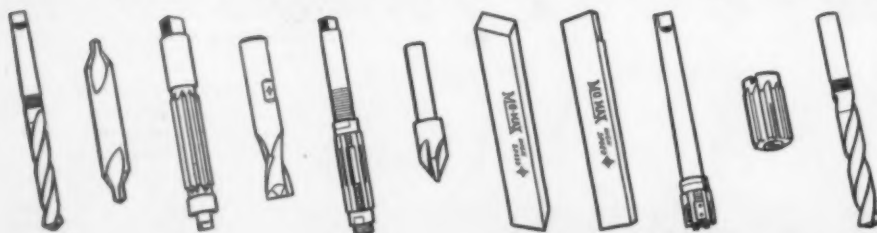
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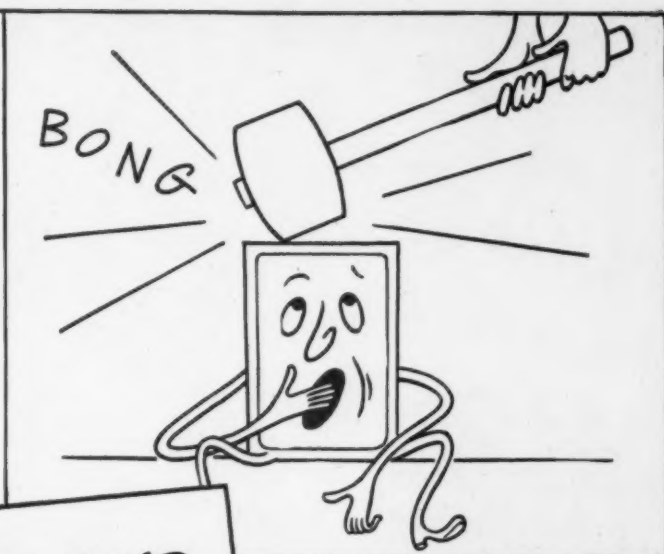
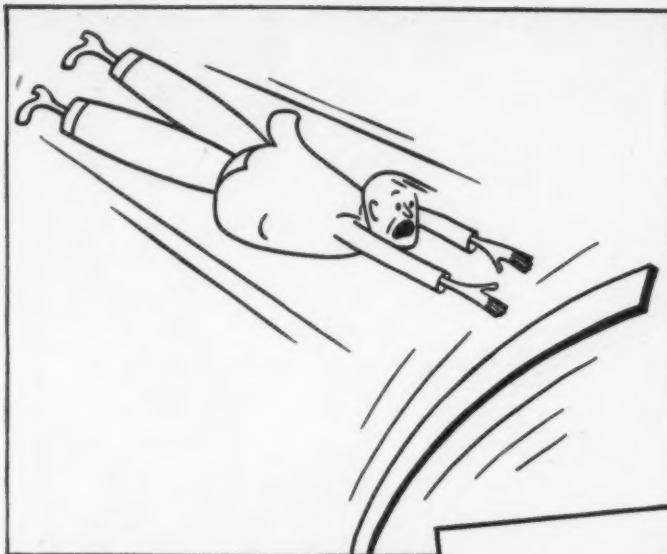
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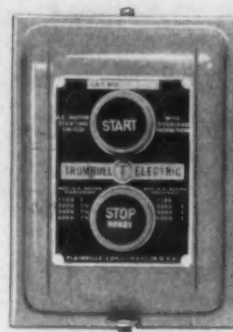
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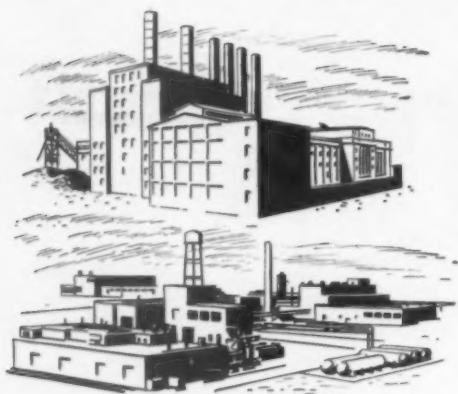
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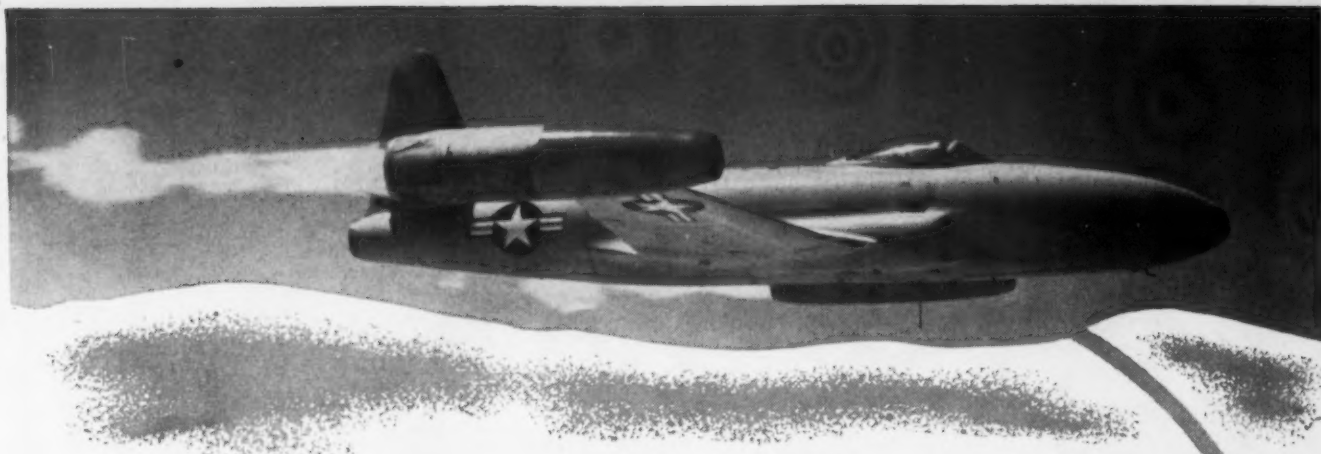
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Enduro

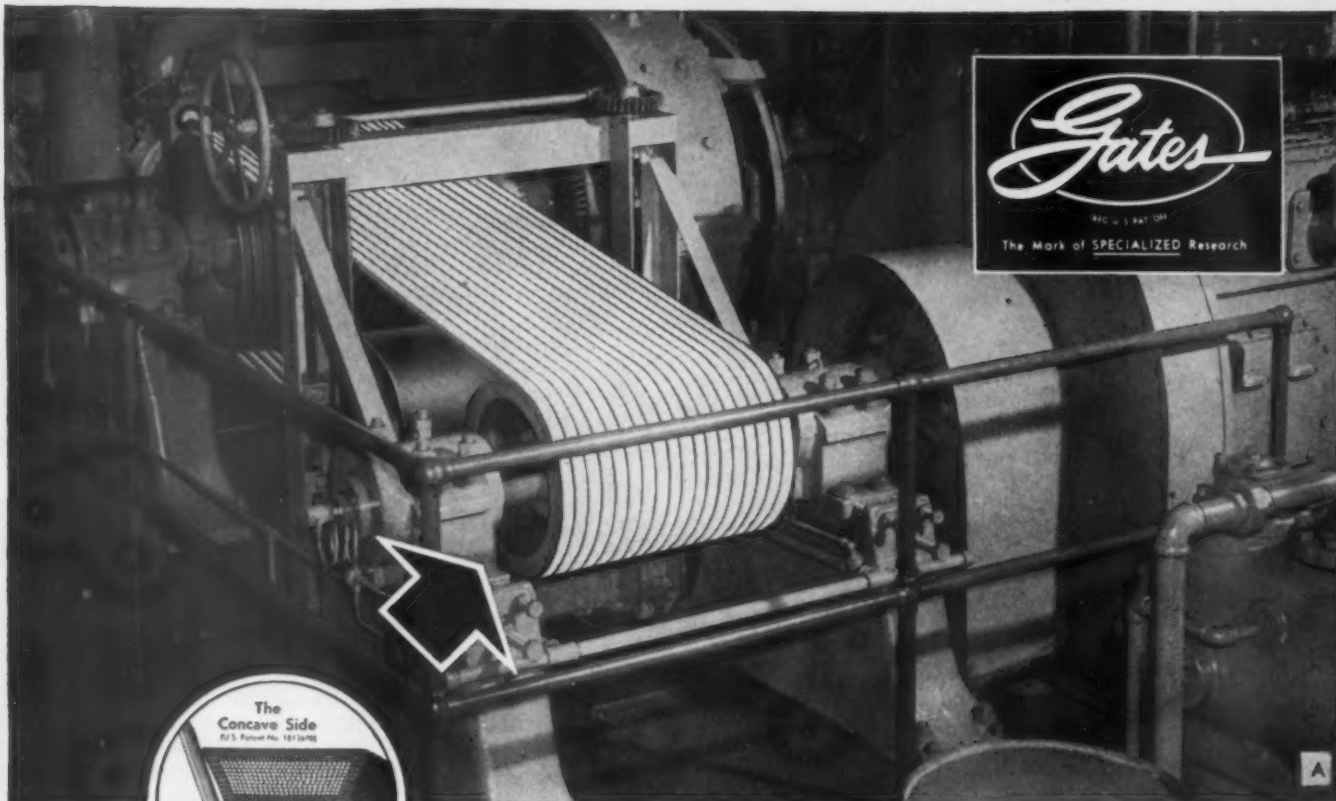
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Here is exactly **WHY** the Concave Side Saves You Money in V-Belt Costs

When any V-belt bends in going around its pulley, it is forced to *change its shape*.

Naturally so, because the top of the belt is under tension and grows narrower while the body, under compression, *bulges out!*

This change of shape in a *straight-sided* V-Belt, is shown in figures 1 and 1-A—and you will note how the bulging sides press *unevenly* against the V-pulley.

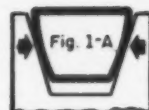
Now look at figures 2 and 2-A. There you see how this change of shape, due to bending, affects the belt that is built with the Concave Side—the Gates Vulco Rope. The precisely engineered Concave Side exactly corrects the side-bulge—and the bent belt *has a shape that exactly fits its sheave groove!*

Two distinct savings result. *First*—There is no side-bulge to cause uneven wear. The sides press *evenly* against the V pulley and therefore wear *uniformly*—resulting in *longer life!* *Second*—The *full width* of the sidewall grips the pulley—thus carrying heavier loads without slippage—and this *saves belts* and also *saves power!*

When you buy V-Belts, be sure you get the V-Belt with the Concave Sides...the Gates Vulco Rope!

What Happens When a V-Belt Bends

Straight-Sided V-Belt



How Straight Sided V-Belt Bulges in Sheave-Groove. Sides Press Unevenly Against V-Pulley Causing Extra Wear at Point Shown By Arrows.

Gates Vulco Rope with Concave Side

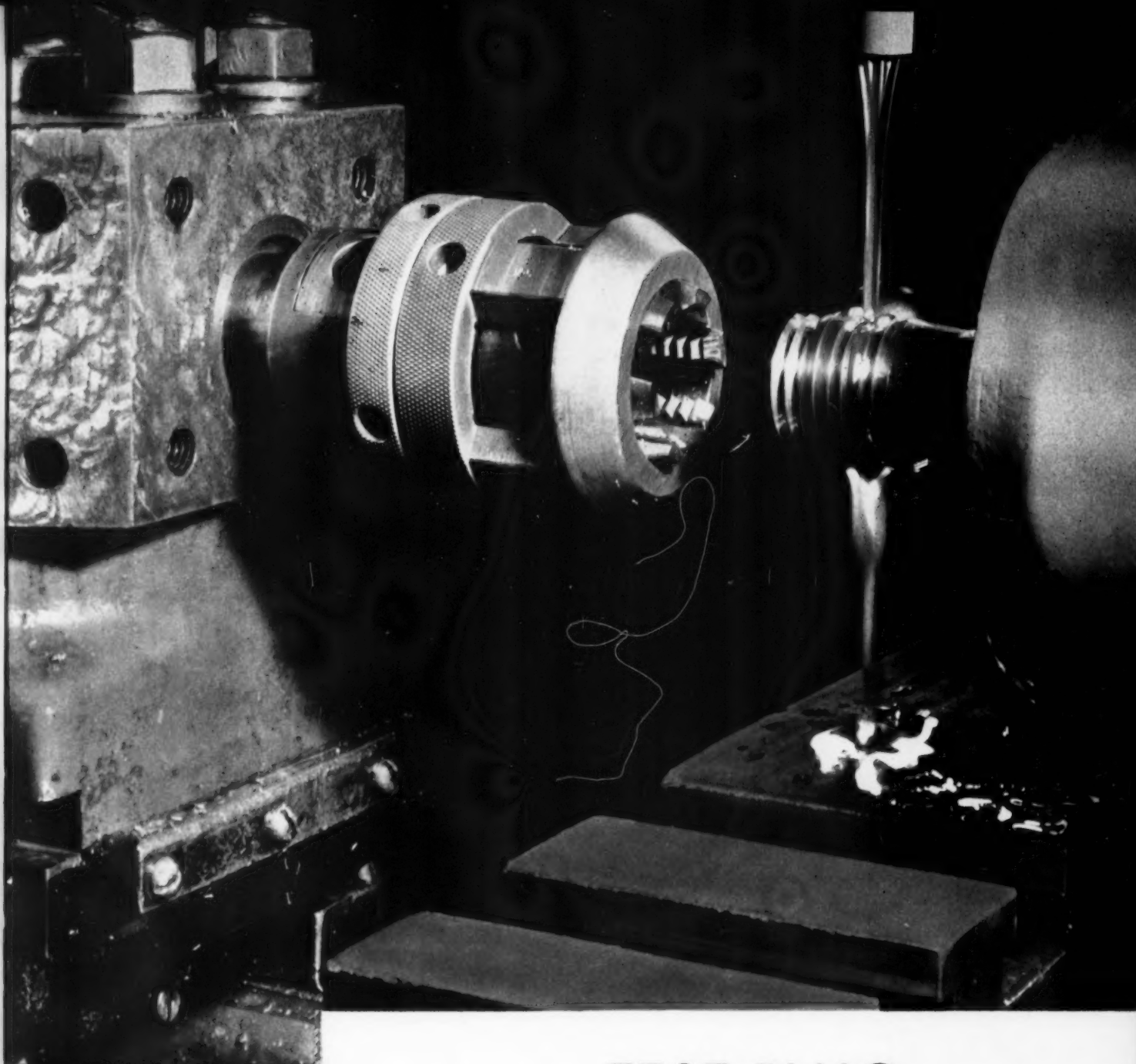


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AMPCO TWIST DRILL DIVISION

GREENFIELD TAP AND DIE CORPORATION

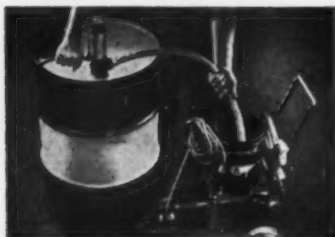
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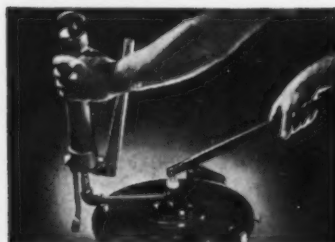
How to Cut a Production Expense from \$14 Daily to 21 cents!



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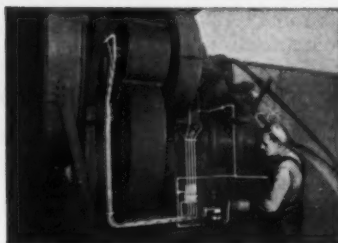
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The National Magazine of Industrial Procurement

VOL. 28, No. 6

JUNE, 1950

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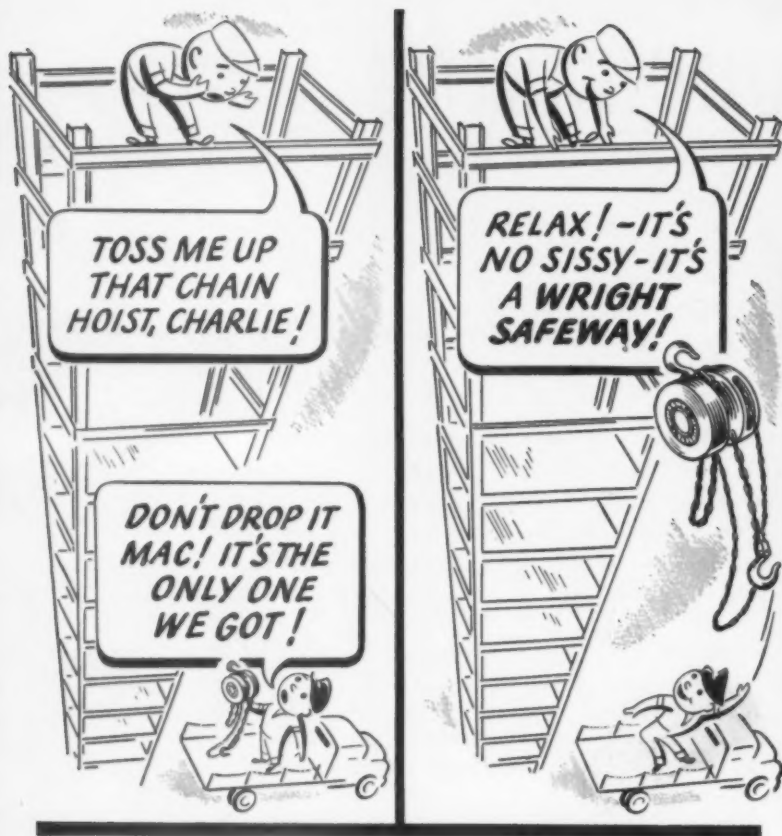
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JUNE, 1950

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FOR THE RUGGED JOBS . . .**

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In Business for Your Safety

**HOISTS
TROLLEYS
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PURCHASE FOR PROFIT

WITH competition growing steadily more keen, even as industrial volume is rising, the attention of management is necessarily focussed on the dollar sign of product costs. The salesman is back at work, but he must offer value, and he must be backed by efficient purchasing and production if he is to be in a competitive position and if his sales are to show a profit to the company.

The purchasing agent's responsibility is not to buy less, nor even to buy cheaper, but to be sure that the company gets maximum ultimate value for every dollar of purchase expenditure. That responsibility is inherent in his job at all times; it is particularly important now. Getting greater value for the purchase dollar is the equivalent of getting greater productivity for the wage dollar. Oftentimes the two go hand in hand.

The evidence on the following pages shows that management — at the top and in the purchasing department — is well aware of the potential for profit that lies in constructive purchasing, and is demanding that purchasing performance shall make this opportunity a reality. It also shows that progressive purchasing men, using initiative and imagination based on a sound knowledge of products and production, are meeting the challenge.

Use This Issue

Presented in this issue are upwards of 200 actual case histories of purchases that have resulted in lower costs and greater values, from the files of purchasing men and of vendors. Some of them may be directly applicable to your own situation and problems. Even more important is the demonstration that these opportunities exist in virtually every phase of industry for which materials and supplies are purchased, and that the savings are achieved not primarily in price but in time, output, quality, and operating costs.

Examples are shown of greater values in purchases of materials and components, machine tools, production tools and equipment, electrical products, maintenance equipment and supplies, office equipment and supplies, materials handling, packaging and shipping, product finishing, and safety.

Study these examples. Then go on from there, purchasing for value and for profit.

Stuart F. Henrity



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Photo shows a portion of the installations at Natrium, West Virginia, where Columbia Muriatic Acid is produced.



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Aggressive Purchasing Pays Big Dividends

By **T. A. Corcoran**

President
National Association of Purchasing Agents

TO FOCUS the attention of Purchasing Agents on the possibilities of "Purchasing for Profit" at midyear of 1950, is both timely and valuable.

This is the time when many forecasters believe the recession—interrupted in the summer of last year—may be resumed.

It is a time when intelligent and aggressive purchasing will pay big dividends.

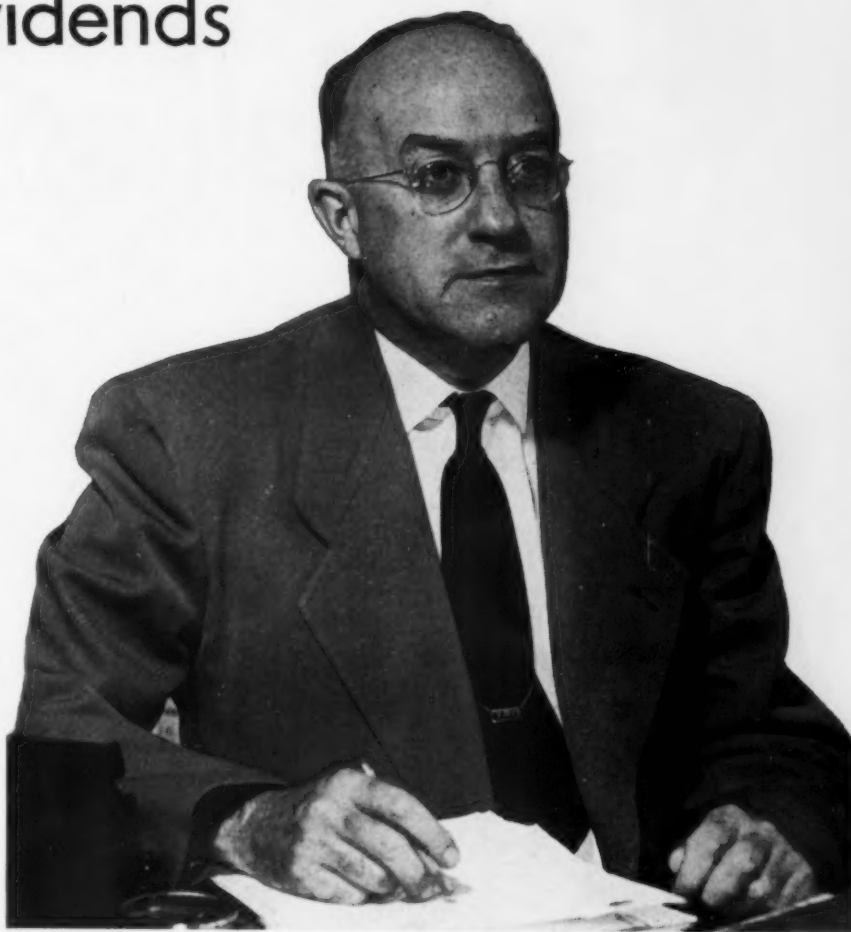
And it is a time when purchasing departments need the understanding and vigorous backing of top management.

Anything that any of us can do to increase the efficiency of purchasing, or to increase the support of management for sound purchasing, will contribute just that much toward maintaining the solvency of our business—and of our economy.

And as long as we can make this economic system of ours work profitably, I think we are safe from all the isms, both from without or within, that are attempting to change this system which has produced the highest living standards in the world.

But let's give our attention first to those things near at hand. Let us, as purchasing agents, develop ourselves and our departments to the highest degree of efficiency, so that we can ably handle the additional responsibilities that progressive managements are constantly placing on our shoulders.

Many purchasing departments have been given full responsibility for materials management. And as these succeed, other purchasing departments will be given this assignment. So it behooves us to be prepared. Particularly, we should study the substantial savings possible in proper control of inventories, and the astounding possibi-



Purchasing departments must have the understanding and vigorous backing of management

Savings resulting from wise purchases are often transferred directly to profits

High departmental efficiency necessary to meet increasing management demands

ties of economies in modern materials handling. Often substantial investment in equipment is necessary, but it can readily be justified, and truly proves to be *purchasing for profit*.

We should constantly keep in mind that savings resulting from wise purchases are often transferred directly to profits. Therefore a purchase saving of \$1,000. can be equivalent to a \$20,000. sale, to a company making 5% net profit.

This should spur purchasing people on to their greatest efforts. It should cause them to take the fullest advantage of that splendid program developed by the Education Committee of the National Association of Purchasing Agents. It should make them regular attendants at the meetings of their local associations. And it should certainly make them avid readers of the wealth of material in our purchasing magazines.



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STAINLESS STEEL—Allegheny bars, plates, sheets, tubing, pipe and fittings, etc.

INLAND 4-WAY SAFETY PLATE—For flooring, ramps, stair treads, product applications, etc.

REINFORCING STEEL—Bars and accessories, spirals, wire mesh, etc.

OTHER PRODUCTS—Babbitt metal, machinery and tools for metal fabrication



RYERSON STEEL



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The Purchasing Score is Recorded in Profits

George A. Renard

Executive Secretary-Treasurer
National Association of Purchasing Agents



THE purchasing department can be best pictured as one of the important doors to the company organization. It swings in to welcome the ideas, products and services of others; and swings out to secure the requirements needed for efficient economical operations.

The purchasing function is, therefore, certainly related to profits. Related so closely they resemble the egg and chicken evolution, because sound purchasing is generally found in a profitable organization—and vice versa.

Obviously, purchasing does not cost—it pays. Purchasing is not spending either; it is the fair negotiation of an exchange of values. It is just as true, however, that you must spend money on adequate personnel to make profits through purchasing, as it is that you must spend money to secure good results from advertising and sales.

Over the past year, one could have lost his shirt through faulty inventory and commitment policies. Is anyone foolish enough to think all prices are to rise and fall in unison in the future?

Or that profitable purchasing can be established through orders or regulations while management plays golf or reads dope sheets? Purchasing is a full-time job requiring ability, experience and continuous application to market and price analysis. Most business problems

are conflicts in the interpretation of old, familiar forces and influences, rather than new developments of complicated economic theories. When production catches up with war postponed demands we naturally return to competitive conditions.

In fact, in these hectic times, when an organization becomes allergic to profits, or anemic before taxes, the management doctors frequently start their examination with purchasing and materials management. Cost pressures and off-beats in the pulse of operations frequently

can be traced from symptoms detected in the purchasing department.

Finally, let's kick this controversy over who influences what purchases into the ashcan. Purchasing bats and fields on the management team and the score is recorded in profits. Any attempt to twist that game into a cold war, with iron curtains separating the important areas of management, is silly. Incidentally it is not efficient, economical management in any of the books—and is sure to lower the score.

Sound purchasing is generally found in a profitable organization — and vice versa

Money must be spent on adequate personnel to make profits through purchasing

Purchasing bats and fields on the management team and score is recorded in profits

Management Looks to Purchasing for Value



Clifford F. Hood

Purchasing Department Influence Should Not Be Minimized

TODAY THE PURCHASING DEPARTMENT is regarded as a vital part of over-all management, a qualified balance wheel on business expenditures. Management should never let itself, consciously or otherwise, minimize the profound influence on the success of a company's operation which is exerted by the purchasing department. This is apparent immediately to any one who realizes that the purchase of goods and services represents more than one-half of the manufacturing dollar. Whether or not a company operates with the proper degree of financial success—whether or not it can set its own prices at a proper level, depends to a large extent on the purchasing agent's ability to buy necessary goods and services at the right price. Also, among other things, it is a duty of the purchasing department to advise plant officials and the engineering department of any new commodities and equipment, and to offer suggestions as to substitutions.

Clifford F. Hood

President, Carnegie Illinois Steel Corporation



Wm. B. Given, Jr.

Purchasing Men Must be of Management Calibre

THE THINGS THAT WE LOOK FOR in purchasing management are pretty much the same as we expect in every section of our management. We want purchasing to take an increasingly important part in the company. We know that it must be in the hands of the right kind of people. Purchasing needs top grade people. It needs in its people, qualities which, when a higher rank vacancy occurs in other departments, will be accepted as making them capable for management places in every rank. In my period as president, one of our former purchasing agents is now head of two of our operating divisions. Another is No. 2 man in another division. We are now entering a period when every purchasing department will have unusual opportunity to prove of great importance to company profits. It may be a better chance than purchasing men will again experience to prove the money-making possibilities of the purchasing department.

Wm. B. Given, Jr.

President, American Brake Shoe Company



John S. Coleman

Purchasing in First Level of Operating Management

IN THESE DAYS OF HIGH COSTS, Burroughs looks upon purchasing as one of its chief divisions. In view of the importance of its activities, the Purchasing Division has been placed in the first level of operating management.

The Purchasing Division at Burroughs, as the clearing house between the company and its vendors, is charged with the responsibility of exploring the markets for new products, new materials, new processes and new ideas. The information developed by the Purchasing Division supplements in an important way the continuing investigations being carried on by other activities, to bring about constant improvements in their respective operations.

Another important function of the purchasing activity, we believe, is to correlate the requirements of the company with general market conditions. In order that we may derive the greatest possible benefit from our expenditures, the Purchasing Division has the responsibility of examining all requests thoroughly and to confer with the initiating authority on all questions which may arise as to the advisability of making the purchases requested.

Properly administered, we feel that purchasing can render two important services to all levels of management: provide the best information on ways and means of improving operating efficiency, and at the same time, furnish the professional advice and assistance required to obtain maximum value from expenditures.

John S. Coleman

President, Burroughs Adding Machine Company



J. W. Corey

Purchasing A Part of Management Committee

WHAT MANAGEMENT EXPECTS of a Purchasing Department can be summed up in a few sentences:

1. Procurement of reliable sources of supply so that production will run smoothly.
2. Procurement of materials of proper quality to meet the product requirements.
3. Procurement of materials at a fair price.
4. Act as the contact to sell our company and its ideals to all of our suppliers.
5. Acquaint our suppliers with the company's problems so that they can offer constructive suggestions to assist in our quality and cost reduction programs.
6. As part of the management committee, to advise other departments of trends, new materials and changes in policy that must be made from time to time to achieve smooth production under varying conditions, quality and cost savings.
7. To be alert to inventory control.

These are the fundamentals we expect our Purchasing Department to act on. In the last decade, the way a Purchasing Department must meet these requirements has required a great versatility.

The defense program and the war days with its priorities presented different problems than the post-war days with its strikes and shortages of materials without the help of priorities.

The post-war days did not assist inventory balance and control, but now we are in a period where balances can be struck, assured balanced supplies obtained, quality of materials held at a high point and economical buying is possible.

The fundamentals have never changed but the methods of attack have been ever on the move, and the Purchasing Department that meets varying conditions will be the most successful.

J. W. Corey

President, The Reliance Electric & Engineering Company



Whipple Jacobs

A Member of The Management Team

THERE ARE MANY ANGLES to the part purchasing plays in management. The director of purchases, whatever his title, is a definite member of the management team. I have always held that there is little or no difference in the purchasing and selling functions. The two sides of the table have a common denominator—it is to effect an exchange of goods at a price satisfactory to both parties. The cornerstone of our system is the free market. Each transaction in the free market must be satisfactory to both the buyer and the seller. The most valuable experience I had in directing the sales efforts of my company was my experience as a purchasing agent.

Whipple Jacobs

President, Phelps Dodge Copper Products Corp., N. Y.



Robert Johnson

Vital Role in Maintaining Company's Competitive Position

"IT IS THE RESPONSIBILITY of our Purchasing Department to maintain high standards of quality according to product requirements. It has the responsibility of checking specifications, and sends samples to our laboratories for test and analyses. By maintaining proper standards we are able to serve our customers well, at the same time keep prices at competitive levels. Our Purchasing Department pays off for every member of our organization, by providing the materials we need, be they carbon paper, cotton, or rubber from distant Asia. It makes sure that these materials are good so that the work of every department can meet Johnson & Johnson standards in quality and neatness. Since the Purchasing Department buys without waste, it helps us to maintain low prices that mean large sales for our products. By doing so it helps to make and maintain jobs, for employment depends on sales."

Robert Johnson

Chairman of the Board, Johnson & Johnson



George L. Meyer, Jr.

Equal Status With Other Major Departments

MANAGEMENT EXPECTS its Purchasing Department to procure the materials needed (and no more), of the correct quality, at the right price, and to have them on hand on time. It's a big order. The right price takes into consideration the end use, suitable quality, a reliable source, and a purchase price that results in the lowest ultimate unit cost. The buyer must take into consideration any differences in the cost of fabricating competitive materials in his own plant; this refers particularly to the differences in the machinability of mill products such as bars, strip, sheet, et cetera. Management expects the purchasing agent to weigh all these factors and recognize that a true cost includes many factors beyond the original price paid. It also expects all members of its purchasing department to do all they can to promote customer good will and do their part in aiding and maintaining good public relations. A member of the purchasing department must not overlook the fact that the fellow he keeps waiting on the bench may be in a position to hurt the company's sales. It is hardly necessary to say that management expects its Purchasing Department to be alert to market conditions, all proper sources of supply on materials and equipment, and new materials as they become available. Modern management certainly expects purchasing to occupy an advisory position of equal stature with other major departments, especially including engineering, production and sales. There must be complete departmental confidence and cooperation. Under the competitive conditions existing today, this cooperation may spell the difference between profitable and unprofitable operations.

George L. Meyer, Jr.

Vice President, Stewart-Warner Corporation



James D. Wise

Purchasing Is a Major Responsibility

THE TASK OF PURCHASING is a major responsibility. Since 43% of our sales dollar is spent for raw and other materials, good management in purchasing is essential. It was in recognition of the importance of the function of purchasing that we created the position of Director of Purchasing in 1946. Subsequent experience has demonstrated the soundness of that decision. The continually increasing complexity of affairs has forced realization and acceptance by business that progressive purchasing policies implemented as a separate and major division, is good business, particularly from the profit angle. Wishful thinking, or mere statement of policy, will not secure the greatest benefits. These are derived by the following steps:

1. Formulation of purchasing policies at top levels by consultative management methods.
2. Distribution to vendors and explanation of policies to the internal organization.
3. Implementation of policies by trained and specialized personnel concerned exclusively with procurement in all the implications of the term.

James D. Wise

President, Bigelow-Sanford Carpet Company, Inc.



W. C. Johnson

One Percent Saving Amounts to \$1,500,000

AS A MANAGEMENT MAN it is my duty to look at Purchasing as an extremely important part of our operations. In my company in 1948, 49.8% of every sales dollar of income was spent in the purchase of materials. This is roughly 50% more than we pay out for salaries and wages. When 1% on purchasing amounts to one and one-half million dollars, management must recognize the importance of that phase of its business. It is management's responsibility to the Purchasing Department to give it the manpower and internal prestige to operate efficiently.

W. C. Johnson

Executive Vice President, Allis-Chalmers Manufacturing Company.

Purchasing Policy Manuals Stress Maximum-Value Procurement

Management recognition of the importance of the Purchasing function is substantiated by its approval of Purchasing Policy manuals in force in many companies, governing procurement duties and responsibilities. The respective sections below present pertinent paragraphs abstracted from typical manuals now in use. These strikingly reflect concordance with the statements by prominent industrial leaders in this issue, voicing demand for maximum value for the tremendous portion of the income dollar expended by the Purchasing Department. They also ably support the statements made by prominent purchasing executives which indicate that purchasing department organization and training are correlatives in procuring maximum ultimate value for each dollar expended.

Rheem Manufacturing Company

Purchasing is the first station on the company operations "right of way." It controls through raw material purchases about 57% of the company's sales dollar. This is more than all other functions combined.

A Purchasing Agent should be constantly developing new and better sources of supply. A Purchasing Agent should never be satisfied with his source or his price. It is our job to obtain the best possible prices by ethical means and at the same time assure our sources a fair profit.

Generally speaking, competitive bids are the best and surest method of obtaining prices and the majority of purchases should be made on this basis.

J. M. Huber Corporation

Purchasing requires careful study and training and should be done by specialists in its activities. The successful buyer must constantly study markets and keep informed concerning the material he buys.

Every Purchasing Department must systematically select information for its own use from the mass of material that comes to it every day. It must constantly be looking for new suppliers, new materials, new grades and better delivery and prices.

The Purchasing Department will initiate, conduct and conclude all negotiations affecting purchases, prices, terms, delivery, etc.

Purchasing Duties: Studying manufacturing methods in the buyer's own and sellers' plants, particularly for their effect on the cost of raw materials or finished products.

The Foxboro Company

Our buyers will buy from sources with good reputation and of sufficient financial standing to meet our requirements. Whenever and in the judgment of the buyer, a saving can be made, he will secure competitive bids.

The Purchasing Department has the duty and authority to ask reconsideration of specifications or quantity of material if in the opinion of the buyer it appears that the interests of the company may be better served.

No one who is not a member of the Purchasing Department should commit himself to any vendor on preference for any product, the source of supply for any product, or give any information regarding competitive performance, final approval or price.

Bigelow-Sanford Carpet Company, Inc.

The Purchasing Division has a share in the discussions and decisions relative to manufacture or purchase of the products used in our manufacturing processes or for resale.

Objectives: To secure for Bigelow-Sanford, materials, equipment and facilities of specified quality and quantity at the time and place needed, and as economically as consistent with quality and service required, i.e., the right price.

To do this with a minimum investment in materials and supplies consistent with safety and economic advantage, and thus assist in maintaining the company's competitive and profit position in its industry, so far as material costs are concerned.

To secure competitive bids unless there is only one source of supply; or it is an emergency order; or the amount is so small as to preclude the possibility of making a saving; or evidence from previous bids and experience justifies the placement of an order.

International Resistance Company

The business of International Resistance Company is based on its ability to dispose of, at a profit, the products manufactured. In the various products of IRC material represents between 30% and 50% of cost.

Price: The real cost of the goods purchased is represented in their ultimate cost in the finished product. The Purchasing Department is responsible to obtain the greatest possible ultimate value.

There are four fundamentals of material procurement whose importance is generally in the order named:

(1) Quality. (2) Quantity. (3) Time (delivery). (4) Price.

In considering competitive bids from several vendors, the lowest bid is not necessarily the best buy any more than the highest.

The A. B. C. of Purchasing

• By George!



A GEORGE W.
ALJIAN

Educational Program Keyed to Profitable Purchasing

MANAGEMENT DEMANDS lower costs—a better competitive position. Taxes and wages will not skid downward. The only means to lower costs lies in new methods, material, equipment and techniques, and in Modern Purchasing. We must be able to readily recognize, quickly grasp, effectively think through, and easily work out sound solutions to our daily problems. To attain such objectives, we must also be able to influence, present, persuade, and secure cooperation, confidence and respect of our contacts: salesmen, other department heads, co-workers, and all others working with us.

We must intimately know all of these things. And management will demand that we contribute to lower costs through "Profitable Purchasing." Our educational program is keyed to that fact. There has been much talk about evaluating the job of purchasing. There is only one basis for evaluating an executive job, and that is job accomplishment measured in dollars and cents. We will be rewarded according to our ability to add to profits through intelligent spending. Our educational work is now basically organized to help every man in purchasing "improve his job." We must all take advantage of this educational work, for we must not fail to meet the stringent demands that management will make upon us.

George W. Aljian

Former President, N. A. P. A.
Chairman, N.A.P.A. Educational Committee



B GEORGE P.
BROCKWAY

Purchasing for Profit

DID YOU EVER HAVE TO BUY SOMETHING that you knew nothing or very little about? That is the challenge to the purchasing agent almost every day. What do you do about it? The procedure I have followed for many years is as follows:

(1) Establish quality desired. (2) Find out where it is to be used and how. (3) Select a reliable source of supply. (4) Determine the economical quantity to purchase and the proper price.

You can't establish some of the needed facts unless you are familiar with operations in your own plant, and learn from the superintendent or foreman why certain requirements are made. This means frequent contact with the shop and provides a means to become better acquainted with the factory personnel.

It is also important to visit your chief suppliers' plants to learn more about their problems, for this often leads to a modification in your requirements which may mean a saving to both parties. The more you know about your own product, the materials to be used therein, and how these are made, the better chance you have to "Purchase for Profit."

Never miss an opportunity to broaden your knowledge and that of those associated with you.

George P. Brockway

Former President, N.A.P.A.



C GEORGE H.
COLE

Purchasing is a Cooperative Function

THE JOB OF PURCHASING and the supervision of the purchasing staff are to a considerable extent, and will continue to be, desk jobs. Reading of mail dealing with the status of important orders, participation in consideration for new purchases and correspondence when appropriate, interviews with those who call from sources of supply and other departments of the buyer's organization, and examination of trade and financial publications relative to supply conditions, will continue to occupy a considerable proportion of the time of the purchasing executive who expects to stay well informed. Knowledge of statistics of his own departmental operation require some desk time, but is important to sound administration.

It might be the easiest course, and in many cases acceptable performance could be and has been accomplished, if the purchasing executive conducted his job entirely from his desk. But many progressive purchasing executives have learned that in spite of the requirements of time

The responsibility of getting maximum value for the purchasing dollar, and of familiarity with materials and manufacturing processes, is a basic part of the accepted code of purchasing standards and practice.

Principles and Standards of Purchasing Practice

ADVOCATED BY

National Association of
Purchasing Agents



LOYALTY TO HIS COMPANY
JUSTICE TO THOSE WITH WHOM HE DEALS
FAITH IN HIS PROFESSION

...the N.A.P.A. standards of purchasing practice.

[3] To buy without prejudice, seeking to obtain the maximum ultimate value for each dollar of expenditure.

[4] To strive consistently for knowledge of the materials and processes of manufacture, and to establish practical methods for the conduct of his office.

To subscribe to and work for honesty and truth in buying and selling, and to denounce all forms of commercial bribery.

[6] To accept no gifts or favors from suppliers, and to call on a legitimate business mission.

[7] To respect his obligations and to require that obligations to him and to his concern be respected, consistent with good business practice.

[8] To avoid sharp practice.

[9] To counsel and assist fellow purchasing agents in the performance of their duties, whenever occasion permits.

[10] To co-operate with all organizations and individuals engaged in activities designed to enhance the development and standing of purchasing.

WE SUBSCRIBE TO THESE STANDARDS

for the important desk work, extra dividends in job performance are realized if work is arranged so that some considerable proportion of available time is spent away from the desk, visiting important sources of supply, other parts of his company, or institutional operations, and meetings with others engaged in the same type of work. Many have found that in instances of urgent need, knowledge of suppliers' production facilities and acquaintance with those who have to do with production and position of orders, have been most helpful in obtaining relief from conditions of urgency. The interest shown in other departments of the operations of the purchaser's company promotes cooperation in coordinated purchase decisions. It all boils down that you can't eliminate the human element in business—and who wants to?

George H. Cole

Former Vice President, N.A.P.A. and
former Chairman of the Utilities Group

VALUE ANALYSIS —

a purchasing technique that is saving
hundreds of thousands of dollars each
year for the General Electric Company

EVERY purchasing department is charged with the responsibility of getting maximum value for each dollar of expenditure in procuring the products it is called upon to buy. Skillful buying is essential but it does not provide a complete answer. The modern approach to this value responsibility is to go behind the requisition and the blueprint—to seek out the basic values that are inherent in design, material, and method of fabrication—and to make sure that the parts or products a buyer is asked to procure represent, in themselves, the maximum value in serving a purpose and meeting a need.

The continuing search for value is everybody's business. It can succeed most fully only when all departments of an organization are keenly alert and cooperative toward this objective, and when they are skilled in the techniques of analysis. What is everybody's business is nobody's business. A proper starting point for initiating this company-wide policy and activity is in the purchasing department, where the company's dollars are committed in exchange for purchased products and where value shows up on the balance sheet. A logical time to renew and intensify its effectiveness was in 1947—just following the unprecedented development of new ideas, new forms of raw material, new processes, and new engineering techniques of the 1940-1946 period.

Value Analysis Division

Product and material Value Analysis at the General Electric Company was accordingly instituted

in 1947 by its Purchasing Department. L. D. Miles was assigned to explore the possibilities and proper organization of the project. The aims were broad and far reaching—to increase the knowledge of basic value; to determine how nearly each individual part, component, and material in the company's new products contains basic value; to establish methods for analyzing and measuring value; and to provide the necessary action to assure value on a companywide scale.

Mr. Miles' concept of this job was that Value Analysis should be an in-

tense detailed study by Engineering, Manufacturing, and Purchasing—in fact, by everyone having an influence on costs—to determine what different materials, changes of specifications, alternative fabricating processes, and design modifications would reduce costs; then to bring these possibilities, each associated with the dollar sign, before the proper person for action. It was basic in his thinking that no reports or claims of savings should be issued by the Value Analysis Division as such, but that savings should be reported by the operating



Harry L. Erlicher

Vice President—Purchases
General Electric Company

Mr. Erlicher established the Value Analysis Division in the Purchasing Department in 1947



W. A. Sredenschek

Assistant to Vice President

Value Analysis comes under his general supervision of purchasing activities

TESTS FOR VALUE

Our Challenge—Our Obligation

Every material, every part, every operation
must pass these tests

★ ★ ★

1. Does its use contribute Value?
2. Is its cost proportionate to its usefulness?
3. Does it need all of its features?
4. Is there anything better for the intended use?
5. Can a usable part be made by a lower cost method?
6. Can a standard product be found which will be usable?
7. Is it made on proper tooling—considering quantities used?
8. Do material, reasonable labor, overhead and profit total its cost?
9. Will another dependable supplier provide it for less?
10. Is anyone buying it for less?

H. L. Ehrlich

GENERAL  ELECTRIC

Every part, every purchase, every operation, is analyzed for value according to this code which has been widely disseminated throughout the organization.



L. D. Miles

Mr. Miles heads up the small central Value Analysis Division in the Purchasing Department—a multi-million dollar responsibility that he started as a one-man project three years ago.

groups where they were accomplished.

Starting alone, his first specific project was a study of a device that had encountered strong market resistance because of high cost and necessarily high price. He worked on this with purchasing, manufacturing and engineering groups. It became apparent that there were potential savings to be had on about half the component parts of the control. Some of these savings were small in themselves; cumulatively, the potential was rather substantial. It amounted to about 30¢ per control. On an annual output of a million units, it represented a cost saving of \$300,000.

The First Project

With this initial accomplishment, there was a rush of many other jobs for study and analysis, sug-

gested by those in management who had come in contact with the work. An immediate result of this was that a second man and later a third were added to the Central Value Analysis "staff". It is significant, however, that with the broadening of the program—more than 30 major analyses completed and 12 currently in progress—the central staff group consists of only three men, serving as a nucleus and training center for the project as a whole.

Training for Value Analysis

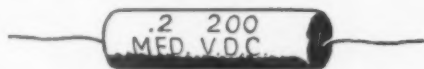
Value Analysis is not a substitution for any of the effective companywide organizations and committees for cost reduction. It is an added tool to assist these organizations in engineering, manufacturing, cost, and purchasing, to secure even more plus values.

● REPRESENTATIVE TESTS FOR VALUE

1 DOES ITS USE CONTRIBUTE VALUE?

PART: Condenser used across contacts of a relay to provide arc suppression as contact opens.

COST: 500,000 per year, at 10¢ each.



When cobalt again became available after the war, an alnico magnet was used to provide snap action. Analysis was initiated to re-evaluate necessity of the condenser with this magnet. It was found that the condenser did not add value, and it was eliminated.

SAVING: \$50,000 PER YEAR. 100%.

6 CAN A STANDARD PRODUCT BE FOUND WHICH WILL BE USABLE?

PART: Stud contact.

COST: \$27 per M.



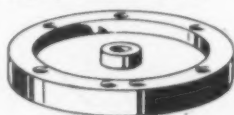
This part was made to special design. Search revealed that a standard stud contact was available at about half the cost, equally suitable and providing identical performance. Another case of a well directed intensive purchasing search.

SAVING: \$13 PER M. 48%.

2 IS ITS COST PROPORTIONATE TO ITS USEFULNESS?

PART: Spacer hub for mounting light aluminum discs.

COST: \$0.90 per unit.



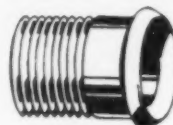
Considering its simple function in the assembly, this cost was not proportionate to its usefulness. Cost was high due to undercutting to reduce weight, which was an important consideration. Value Analysis study showed that by making the part of aluminum, the undercutting could be eliminated and a resulting 20 cent part provided identical performance with still further reduced weight.

SAVING: 70¢ PER UNIT.

7 IS IT MADE ON PROPER TOOLING, CONSIDERING QUANTITIES USED?

PART: Stainless weld nipple.

COST: 20¢ each.



Because of relatively small quantities required, procedure had been established to purchase a standard stainless fitting and machine away a part of it to provide the desired weld embossing. Re-evaluation disclosed that production requirements had stepped up sufficiently so that it was now economical to make it on an automatic screw machine. Cost by the latter method was reduced to 5¢ each.

SAVING: 15¢ PER UNIT. 75%.

3 DOES IT NEED ALL OF ITS FEATURES?

PART: Stainless steel disc in dispensing machine.

COST: 70,000 per year, at 18¢ each.



These washers were formerly chamfered, one side. Study developed that for the indicated use, the chamfer made no contribution to value. By eliminating it, the cost was reduced to 5¢ each.

SAVING: 13¢ PER UNIT; \$9,100 PER YEAR. 72%.

8 DO MATERIAL, REASONABLE LABOR, OVERHEAD, AND PROFIT, TOTAL ITS COST?

PART: Stainless dowel pin.

COST: \$3 per M. (50,000,000 a year.)



This dowel pin is purchased according to special design and specifications. Value Analysis indicated that the cost was out of line with reasonable standards. Every detail of the specification, manufacturing process, and inspection was studied with the vendor's manufacturing people. As a result, some wastes of material and labor were eliminated. The identical part, produced to identical tolerances, is now purchased at \$2 per M.

SAVING: \$1 PER M; \$50,000 PER YEAR. 33%.

4 PART: MICA STACK USED FOR INSULATION.

COST: \$40 per M.



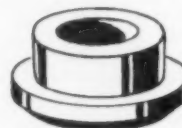
By changing to Micalex, cost of \$34 per M was available and, due to the molded contour of the Micalex, the parts of the assembly were more rigidly mounted.

SAVING: 15% AND A BETTER ASSEMBLY.

9 WILL ANOTHER DEPENDABLE SUPPLIER PROVIDE IT FOR LESS?

PART: Bushing.

COST: \$18 per M.



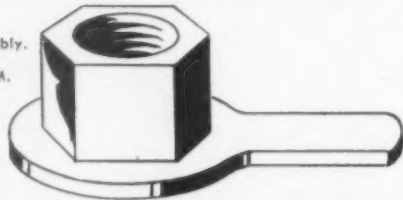
Examples similar to this are being developed by the dozens by the buyers in virtually every product classification. In this case an exploration of the market resulted in finding an equally reliable source of supply that would furnish the identical part at \$13.50 per M.

SAVING: \$4.50 PER M. 25%.

5 CAN A USABLE PART BE MADE BY A LOWER COST METHOD?

PART: Hub assembly.

COST: \$30 per M.



Formerly designed and made as a two-part riveted or staked assembly. Study showed that part could be made as a casting, eliminating assembly operation and simplifying production.

SAVING: \$20 PER M. 67%.

10 IS ANYONE BUYING IT FOR LESS?

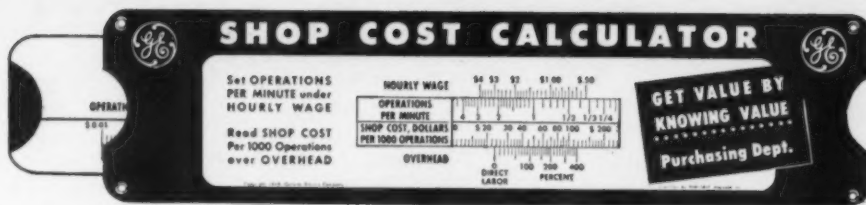
PART: Button.

COST: \$2.50 per M, used in large volume.



This phase of cost measurement draws no line of comparison whether within or outside of the company itself. The extensive purchasing activities of the GE organization provide a ready means of comparison and are a logical starting point in considering this question. In this case, a similar button was being purchased in another GE high-production factory, at \$1 per M, that would give identical performance in the application under study.

SAVING: \$1.50 PER M. 60%.



One of the tools of Value Analysis is this slide rule for quick calculation of shop costs. Knowing value is the first step in getting value.

Value Analysis organization is teamwork, with a small central group developing, gathering and disseminating "Value Information", evaluating some products, and training men; and plant Value Analysis groups extending Value Improvement throughout their respective products, aided by the methods, information and trained personnel provided.

In the central group, on-the-job training is provided regularly to purchasing and other personnel assigned by the various plants and operating departments. The training period is usually of a month to six weeks duration. During this time, the men actually work on analysis jobs, with the assistance as needed from members of the central group. They then go back to their own operating units. They have learned considerable about methods and techniques of value in analysis work. They have seen many examples of successful analysis, and they have become members of a team with a common goal, so that they now know on whom to call for all different types of information.

Each 90 days, an engineer who has been selected for outstanding imagination and other characteristics is supplied for Value Analysis training. This man usually comes from the creative engineering program of the company.

Now Firmly Established

As a result of this organization plan and training program, Value Analysis is now firmly established and effectively operating in 11 plant groups, within 2½ years of its inception in the central purchasing department.

To sell the idea more widely throughout the organization, and to insure an understanding of the program, Mr. Miles prepared a demonstrating lecture, with challenging illustrations of what Value Analysis

has accomplished, and has presented it to a score of groups in engineering, management, purchasing, cost, and manufacturing divisions, reaching upwards of 2,000 people. A "Value Analysis Instruction Series" consisting of twelve one-hour sessions, has been given twice to groups of 30 top buyers. Four thousand copies of the widely publicized summary of ten "Tests for Value", attractively set up to emphasize the dollar motif, have been supplied upon request to purchasing and operating personnel. A weekly one-page "Value News" bulletin flashes to 900 buyers, engineers and manufacturing people, practical tips for getting better value. Designed for ten-second reading, each issue carries a tangible idea for value improvement. A monthly supplement carries a digest of new products and materials.

A Cooperative Effort

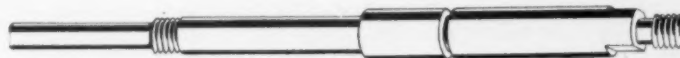
Value Analysis is by no means essentially a search for new materials and methods. The laboratories, engineering and manufacturing departments are constantly engaged in those researches. It is, rather, an approach to a problem, a way of

thinking and of action. Value Analysis focuses manufacturing, engineering, and purchasing attention on one determined objective—the same performance at lower cost—and presses for action to accomplish this end.

Value Analysis recognizes authority, where final judgment properly belongs in engineering, manufacturing, or commercial departments, but strenuously defends lower costs and higher value and provides facts to support such decisions. The direct result of a Value Analysis project is a suggestion. These suggestions, for one reason or another, are not always adopted. But with the development of facts to support the dollar value potential, about 80% of them are found practicable and are put into practice.

Joint Areas of Responsibility

The favorable results of Value Analysis are achieved through the concept of a high degree of self-help and coordination between engineering, manufacturing and purchasing. In each case, there are areas of individual action. The engineers design the product for unquestioned performance; the manufacturing men establish the methods for producing it; the buyers negotiate with dependable suppliers for the best prices, terms, and suitable delivery. But there are also areas of joint responsibility. Value Analysis develops alternate costs for engineering decision and re-evaluation, and in the joint area between purchasing and manufacturing, costs are developed for purchasing parts or materials in various usable forms



Value Analysis pointed the way for reducing the cost of this stainless steel valve stem from 45¢ to 20¢. First stage was a revision of purchasing practice, finding the right vendor and setting ordering quantities at the most economical manufacturing quantity. This brought cost down to 24¢. It was subsequently determined, by working with engineers and vendor's production men, that a two-piece assembly could be used by making a slight change. Combined cost of the two pieces was a further reduction, to 20¢. About 35,000 are used per year.

VALUE ANALYSIS JOB PLAN

I. Evaluation Phase

- Secure all pertinent facts—costs, quantities, vendors, drawings, specifications, planning cards and manufacturing methods information.
- Discuss thoroughly with the engineer, ask questions, listen, develop with him a thorough understanding of the problem.
- Determine the amount of effort that should reasonably be expended on each item of cost.

II. Speculative Phase

- Generate every possible solution to the problem. Consult others who may help you.
- Systematically explore various materials, machine processes, rearrangement of parts, etc.
- Encourage free use of imagination. Record every suggestion that seems even remotely possible.

III. Analytical Phase

- Evaluate each idea carefully. Sift out those that are definitely impractical.
- Investigate all promising ideas for practicality and savings possibilities.
- Select the most promising ideas. Set up a program to pursue each idea vigorously.

IV. Vendor Contact Phase

- Through the responsible buyer, search further for the best suitable specialist suppliers.
- Give good suppliers enough facts to enable them to make suggestions. This phase, properly carried out, should strengthen the buyer in his position and add to his facilities.

V. Engineering Study Phase (Second Contact)

- With the engineer, study each suggestion on the established program. Get his ideas on practicability and engineering suitability. He may make further valuable suggestions.

VI. Engineering and Vendor Study Phase

- Each will usually suggest means to lower cost, contingent on suitable action by the other.
- Bring engineer and vendor together to discuss possible changes. Suggest trial parts, methods and tests. Sell each to the other.
- Stick with each promising suggestion until tangible results are in evidence.

VII. Status Summary and Conclusion

- Issue a concise, complete summary of the status on each part, showing the open problems in purchasing, manufacturing and engineering.
- Send a copy to the proper man in each group.
- Finish the job promptly, and go on to the next.

and stages of completion for manufacturing evaluation and decision.

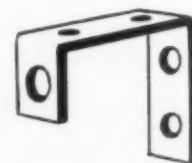
In a study to determine the area of most productive analysis work, 114 value improvement cases were analyzed to determine what actions were required to secure the improved value. Results of this study were tabulated as follows:

Engineering, unaided	2
Purchasing, unaided	8
Manufacturing, unaided	9
Engineering and Purchasing working together	34
Manufacturing and Purchasing working together	43
Engineering, Manufacturing and Purchasing working together	18

Team Work Essential

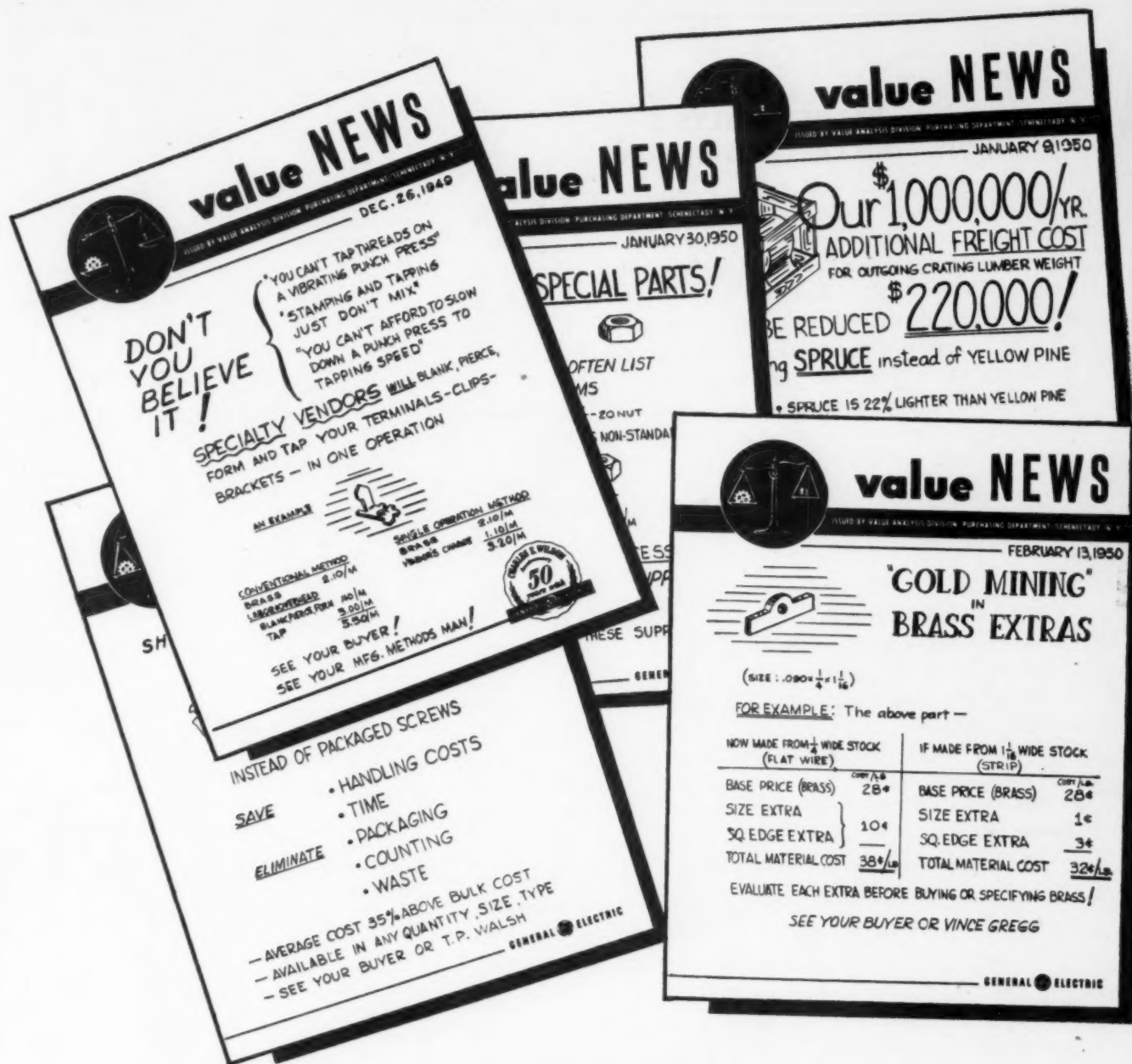
It is obvious that teamwork is absolutely essential. This is not conference or committee work, but a highly individualized responsibility. The Value Analyst works directly with the responsible engineer on items of engineering evaluation or other engineering problems. He works directly with the responsible manufacturing men on materials, on forms of raw material, and on fabricating problems. He is constantly working with the buyer, making sure that each element of value is realized in the purchasing arrangements.

In working with these various units, it is recognized that the first step is to put this "know-how of value" into concrete, practical terms. Whether a man be an engineer, cost man, manufacturing man, or buyer, the more he knows about actual value, the better value



A major emphasis in Value Analysis is placed on making use of specialty suppliers. This bracket, produced by conventional methods, with two tapped holes, cost \$13 per M. A specialty supplier who provides small tapped parts without intermediate handling was able to provide the part complete, ready to use, at \$4 per M. Annual use of these brackets is about 2,000,000.

Annual saving: \$18,000, or 69%.



Typical copies of the weekly "Value News". Reading time—10 seconds. Each issue commands attention, drives home one potent point for getting greater value.

he will secure for his phase of the product. Accordingly, some very useful helps have been devised. For example, a simple slide rule has been made available, to establish "shop costs" (material, labor, and overhead) at various wage and operating rates. Knowing the length of time required for an operation, the shop costs can be determined almost instantly. A table printed on the reverse side of the rule shows approximate cost per thousand pieces for five common materials—carbon steel, aluminum, magnesium, brass, and phosphor bronze—in rods of standard diameters and sheets of standard thicknesses.

"A "Value Team" is available to all buyers, cost men, engineers, and others. On invitation, they will evaluate 40 to 50 parts per day.

How Value Analysis Works

It has been found that a basic deficiency in value is best discovered by starting with a complete cost breakdown of the part under consideration, showing material, labor, and overhead, and figured through to shop costs. Each separate element of cost is then readily evaluated in relation to its functions. Frequently, any disproportionate cost will "stand out" and indicate

the direction which further study and analysis should take. In any even, it is the job of the Value Analyst to isolate specific, definable problems in each project, to crystallize such problems and bring new information to bear upon them through referring them to specialists for cost-saving suggestions.

These specialists may be within the company organization or outside. The Research Laboratory, General Engineering and Consulting Laboratory, the works laboratories, the Manufacturing Policy Division, and others have vital information which may in some

VALUE ANALYSIS IS "DOLLAR ENGINEERING"

Value Analysis at the General Electric Company has been the means of engineering dollars out of product costs and engineering greater value per dollar into those products. It is a cooperative program. Value Analysis discloses the value potentials, which are translated into dollar savings by design, manufacturing, and purchasing personnel. Some of the unit savings are small, but the cumulative effect of several changes in a product, multiplied by thousands of units in large scale production, rises to impressive totals ranging from a few hundred dollars to well over a million in annual savings.

Increased values have been found in many ways. Some typical examples:

	Old Cost	New Cost
Change from forging to casting	5.30	2.30
Change of material specification	14.00	4.50
Change of machining process	30.00	15.00
Change of mounting design	55.00	34.00
Change of vendor46	.31
Change from our own manufacture to purchase from specialist vendor	3.76	2.14
Change from vendor to our own manufacture	4.90	2.72
Change from special to standard49	.08
Purchase in pre-assembled form	9.00	2.00

Value Analysis is applicable to products of small volume production as well. Opportunities for value improvement totalling \$80,000 per year were found in one production schedule of 2,000 units annually.

Through Value Analysis, Purchasing faces up squarely to its responsibility to management:—"Value Guaranteed in Every Material in Every Part."

hitherto unsuspected way apply to the solution of particular problems.

A most important phase of the analysis is the use of dependable vendors who are specialists in their respective fields. Specialty suppliers who have developed a high degree of genius and technique in their restricted field are supplied with suitable samples, drawings and operational information, and are requested to suggest how their facilities can be used to best advantage and their products used for the greatest utility. Purchasing such specialty parts is an enormous

source of value enrichment. Frequently, instead of purchasing or making special parts, intensive search will disclose that some supplier regularly makes a "near standard" part that will do the job at a fraction of the cost of the special.

To insure completeness of the analysis, a job plan outline has been developed for carrying the project through various phases that may contribute to greater value. The seven stages of this job plan are tabulated herewith. The techniques within these phases have been developed in greater detail, in a series

of suggestion sheets that incorporate a good deal of the experience gained in previous projects.

Points to Explore

In the speculative and analytical phases, for example, it is suggested that the following possibilities be explored:

1. Eliminate the part. (*Example:* Check accessory items and features—possibly the need for them no longer exists.)
2. Simplify it. (13 suggestions. *Examples:* Put all of the tapped holes into one part, eliminate mold cycles and slower machine cycle.)
3. Alter it so that a high speed method can be used. (16 suggestions. *Examples:* Drill and tap small parts in the strip before cutting apart; consider tubular rivets instead of solid—tubular rivet machines operate faster than high speed hammers.)
4. Do the operation in a tumbling barrel.
5. Alter so that standard parts or materials may be used. (15 examples.)
6. Use a lower cost material. (12 examples.)
7. Use a higher cost material which, by its nature and properties will afford a simplified design and facilitate lower cost assembly.
8. Miscellaneous suggestions. (*Examples:* wherever practicable, use a good sampling method instead of 100% inspection; don't spend money for sizing if supplementary operations are necessary anyhow.)
9. Check it against other methods of fabrication. (*Examples:* die cast, extrude, permanent cold casting.)
10. Check it against unique, less well known methods of fabrication. (*Examples:* lost wax casting; miniature casting on wire, cord, tape, or rod; electro-forming; powder metallurgy.)

11. Check unusual but available raw materials for use on the job. (*Examples:* preplated steel; expanded and embossed metals; fiberclad, metalclad, or rubberclad metals.)

12. Determine where a design might reasonably be altered for automatic assembly. (4 examples.)

13. Survey the purchasing with the buyer. (5 suggestions.)

It has been found that the success of a Value Analysis project depends to a very considerable degree upon its intensity. A high



Monthly edition of "Value News" brings information on new materials and products that may contribute to greater values. This representative issue presents 26 ideas in the fields of metals, chemicals, plastics, adhesives, coatings, fabrics, laboratory materials, ceramics, hardboard, diamond powder, quartz tubing, and insecticidal paint.

pitch of interest and concentration cannot be continued indefinitely. Consequently, Value Analysis examinations are intense and generally short. The suggestions developed from them are recorded on a report form which usually includes a sketch and indicates the actions that are necessary and the divisions that must take these actions to achieve the savings set forth.

Authority not Affected

It is made very clear throughout the Value Analysis program that authority is not affected. Engineering suggestions are put up to the engineers for decision. Planning and process men make the decisions on manufacturing considerations.

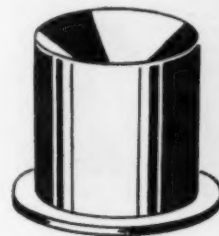
Stylists and commercial men rule on matters within their normal province. The buyer follows through on purchasing matters. Value Analysis works closely with all of these groups in developing the information on a project, finds the facts and indicates the value potential, keeps all divisions informed as the study progresses, and serves in an advisory capacity.

Value Analysis is distinctly *not* hocus-pocus or a magic formula. It is determined, intensive work, that continues its exploration, study, and re-evaluation after the initial answer to a problem is "No" until a satisfactory answer has been reached or until proposals have been weighed in the light of all the available facts.

There can be no "credit grabbers" in a Value Analysis program. The job of Value Analysis is to assist the engineer, the buyer, and the manufacturing man, each in his own field, to secure reductions in cost while maintaining equivalent or better performance, adding up to greater value. The accomplishments of the program, as indicated in representative case studies herewith, are eloquent testimony to the practical dollars-and-cents value of this policy and program.

Up to this point, the work of the Value Analysis Division has been chiefly in connection with existing products, where its contributions have been welcomed by management hard pressed by rising costs and increasingly competitive markets.

It is a matter of particular satisfaction to those engaged in this work that the more advanced stage of Value Analysis is already developing—evaluation before designs are "jelled" and before substantial tool expense is incurred. It may be more difficult to rate the accomplishment of these studies in dollar values, but the values will be there in terms of lower cost manufacture and broader markets.



40,000 of these stainless steel buttons per year were being turned out as a screw machine part, at a cost of 6¢ each. Because of the design, it was impractical to make them as an upset part, since the sharp pointed impression on top would involve too much maintenance on the machine plunger. Value Analysis concentrated on the design, found that the equivalent function could be served if the lower portion of this impression were flattened. This slight change permitted the part to be made on a header. Equivalent value was obtained for 2¢ each instead of 6¢.

ANNUAL SAVING:
\$1,600 or 67%

Value is the Goal of Purchasing



Andrew H. Phelps

A Bigger Load; More Responsibility

THE IMPORTANCE OF COST REDUCTION and responsibilities of purchasing in this regard are obvious. We must explore suppliers' suggestions completely, follow through on our engineers' ideas, and contribute ideas and interest of our own. The main difference between the purchasing agent of today and the purchasing agent of yesterday is not brains, or sincerity, or understanding. It is largely the circumstance that management has a full realization of the importance of purchasing in the successful operation of a company. This gives the purchasing agent of today a bigger load, more responsibility and greater opportunity. At Westinghouse we buy about 100,000 different items. Our purchases constitute 47% of the company's sales dollar. With other companies this ratio varies from 20% to 60%. Two things are clear: First, management is compelled to recognize the importance of purchasing. Second, for the purchasing agent, responsibility and opportunity go hand in hand. It is vitally important, if our companies are to stay in the black and show a profit, that everything possible be done to reduce the amount of money that is tied up in inventory.

Andrew H. Phelps

Vice President
Westinghouse Electric Corporation, Pittsburgh



V. deP. Goubeau

Sound Materials Management Essential

FAILURE TO APPLY SOUND PRINCIPLES of materials management can be just as serious an omission in protecting a manufacturer's business as the neglect of one of the more conventional safeguards. By this failure, profits built up by another end of the business can be wiped out overnight. Materials management is the art of making available for production at the right time, in the right quantities, and at a price which will permit of a reasonable profit, the materials and components required to meet manufacturing schedules. Furthermore, it will safeguard that profit through the avoidance of obsolescence, market write-downs and the like. Materials must be purchased not only at the right prices, but in quantities that are tied directly to a sound production plan. Scientific materials management takes fully into account the manufacturing process. It protects against the accumulation of a finished goods inventory when the market is off, thus avoiding excessive mark-downs later on. Materials management is equally vital to sales, manufacturing, purchasing and finance.

V. deP. Goubeau

Vice President in Charge of Materials
Radio Corporation of America, RCA Victor Division, Camden, N. J.



Ralph O. Keefer

Purchasing Prestige Depends on Performance

GOOD PURCHASING involves more than seeking the lowest price. Tremendous opportunities for lower cost production are to be found in machine tools of modern design and increased efficiency, in the improved materials made available through technological developments; in better cutting tools and abrasives and finishing methods; in the handling of materials from the receiving platform through stores and to the production line; in the analysis of our suppliers' facilities to see that they too have modern equipment and efficient procedures. Purchasing performance is measured in end-costs, and these costs start in our own specifications and in the plants of our suppliers. All of these factors demand our constant and intelligent attention as purchasing executives. As purchasing agents we are entrusted with the spending of the largest single share of industry's dollar. Prestige depends on performance. We *must* accept this challenge.

Ralph O. Keefer

General Purchasing Agent
Aluminum Company of America, Pittsburgh



R. L. Van Cleve

The Qualifications of a Good Buyer

SOME OF THE QUALIFICATIONS of a good buyer are as follows: *First*, he must know his assigned commodities. *Second*, he must know the commercial aspects of those commodities. Who makes the commodity? Who makes the best? What progress is there in manufacturing methods? What competitive materials are available? What are the market conditions and price trends surrounding the commodities? The delivery situation? The effect of labor troubles on availability? The commercial side is most important. *Third*, the buyer must know what the plant does with the commodities he buys. Why? What would make the item a better purchase for the plant? What could the plant do, working with the buyer, to make the item a more economical purchase? The operating side also is important. Obviously it requires considerable experience to possess the background which will permit doing a good buying job.

Special qualifications may be necessary for some buyers. There are purchasing departments where every buyer is required to have a college degree in engineering. There are others where some buyers are required to have college degrees in chemistry or in chemical engineering. Even in these specialized cases, the buyer should know something about his company—just how it is organized, its policies and objectives, and how the organization functions to accomplish these ends.

R. L. Van Cleve

Director of Purchases
Carnegie-Illinois Steel Corp., Cleveland



Richard M. Kimball

Purchasing Department Responsibilities

AS A PHASE OF EFFICIENT PURCHASING the purchasing department has the duty and authority to ask reconsideration of specifications or quantity of material if in the opinion of the buyer it appears that the interests of the company may be better served. Specifications should be checked by Purchasing to make sure material is obtainable and practical, before issuance of order. Buyers must be alert to pass on to potentially interested individuals information deemed useful derived from salesmen's interviews, direct mail or other advertisements. All correspondence with suppliers relative to quotations, purchasing, delivery and technical data pertaining to or likely to lead to a purchase should be handled through the purchasing department. The purchasing department may request representatives of other departments to select materials, equipment or facilities, but actual commitment can be made only by the purchasing department.

Richard M. Kimball

Purchasing Agent
The Foxboro Company, Foxboro, Mass.



E. M. Krech

Buyers Must Study Manufacturing Methods

IT IS NECESSARY that the buyer have as complete information as possible on the consumption, production, stocks and prices of all purchases over a period of years as well as cost of production, transportation and the locations of sources of supplies. A basic responsibility is to seek cheaper or better sources of supply. Another is to study manufacturing methods not only in his own but in sellers' plants, particularly as to their effect on the cost of raw materials or finished products. It is also his responsibility to study manufacturing methods in competitive and similar industries, and to keep in touch with new developments in the mechanical, electrical and chemical fields. He must study packaging and containers, their prices, suitability for the service required and the cost of their transportation both empty and packed.

E. M. Krech

Director of Purchases
J. M. Huber Corporation, New York City.



H. W. Christensen

Trained to Contribute to Profitable Company Operation

IN OUR COMPANY, purchasing is a top management function on a parity with operations, engineering, sales and accounting. The director of purchases reports to the president. We believe that efficient purchasing, performed by intelligent, well-trained people is a key to profits.

Our organization plan is based upon commodity groups, each buyer being a specialist, or an expert, if you please, in his particular group. Our buyers are carefully selected. Most of them are college graduates and possess specific industrial education and knowledge of materials. Some have engineering and operating backgrounds and are qualified by experience in our plants to intelligently discuss and negotiate for the purchase of technical equipment.

We have a special training program for buyers. Each buyer, regardless of his experience, is required to participate in a special training program at least once a year, to the end that the purchasing department may make its full contribution to profitable company operation. The training enables buyers to increase their knowledge of:

- (1) The methods employed by our operating and engineering departments to determine the material and new facility requirements of each plant in the company.
- (2) The procedures, controls and coordination necessary for the request, issue and record of use of required materials.
- (3) The operating conditions and practices involved in the production of our product as it relates to purchased materials or services.
- (4) The personnel involved in these operations.

H. W. Christensen

Director of Purchases
Columbia Steel Company, San Francisco.



G. L. Haszard

Purchasing Department Employees Well Trained

WE ARE QUITE FORTUNATE in our company in that we have an excellent employment group backed up by a capable industrial psychologist and all applicants are carefully screened before receiving an interview with the purchasing agent. In our department, however, we promote up through the organization, thereby assuring ourselves of a well-trained employee. Qualifications are that the prospective employee must know his company; know materials and where and how used; must be capable of discussing purchasing problems with supplier and department head alike. He must have initiative and, above all, he must be honest and sincere.

We have developed a training plan with the assistance of our company training section, that really shows results. Our buyers regularly attend the monthly meeting of our purchasing agents' association. A technical background is desirable but not essential.

G. L. Haszard

Purchasing Agent,
British Columbia Electric Railway Co., Ltd., Vancouver.



Wm. H. Hunt

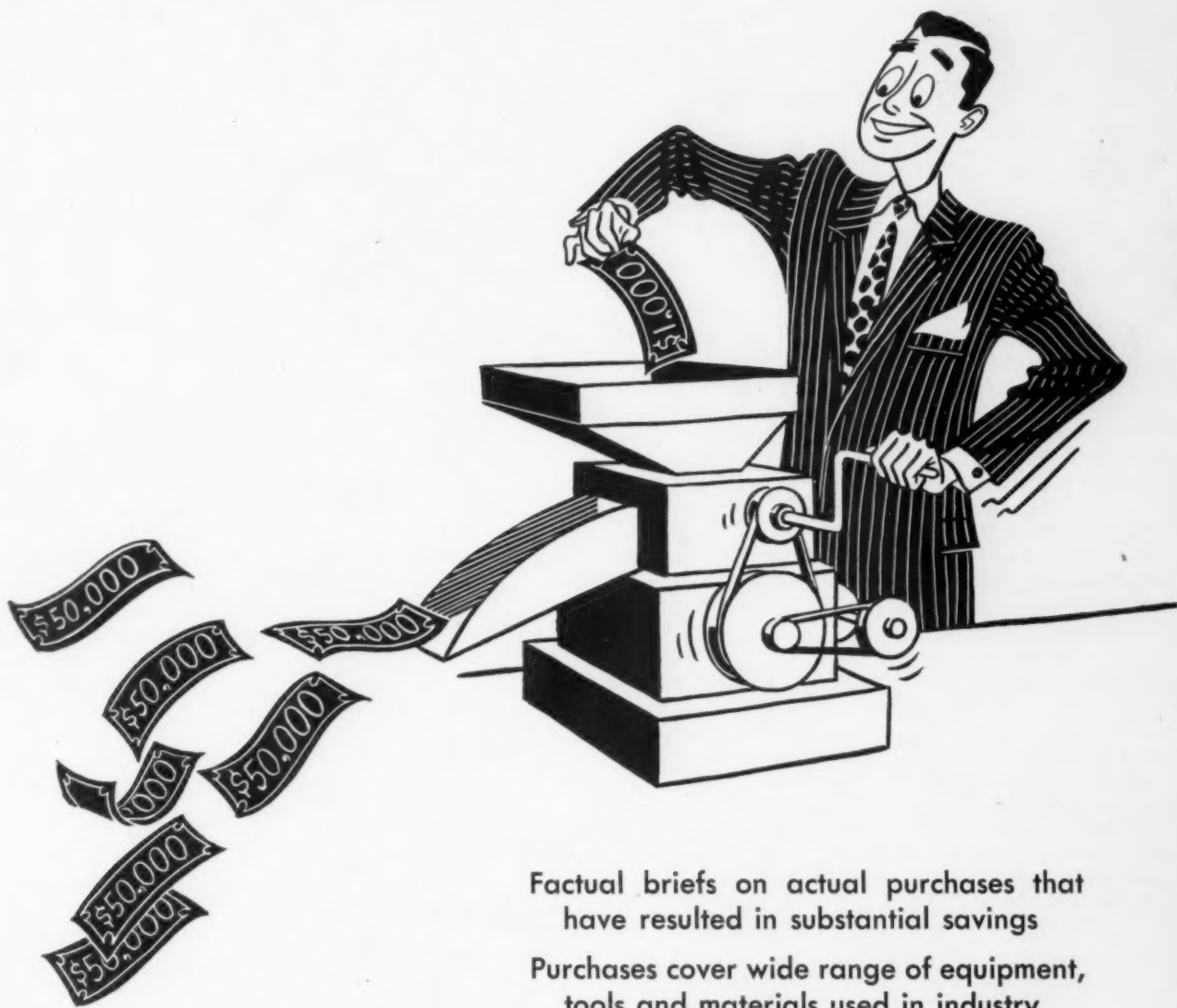
Successful Buying Considers Intangibles

UPON THE P. A. rests a great amount of responsibility, in good times and bad, but especially when uncertainty darkens the horizon. What he does can affect his company's position in a very substantial manner, and he must analyze his every action. The subject of price is only one of the factors that enters into the selection and purchase of a company's requirements. Quality and service are equally important considerations in placing a purchase order. Then again, the buyer must keep abreast of the changes in the field of new materials and developments. He should acquaint the engineering and maintenance departments with all new materials suggested by the salesmen who call upon him. Successful buying takes into consideration intangibles as well as the more obvious tangible factors, and sometimes the soundest purchasing decision is the one in which the tangibles take second place.

Wm. H. Hunt

Purchasing Agent
Nicholson File Company, Providence, R. I.

Profitable Purchases Reported by Purchasing Agents



**Factual briefs on actual purchases that
have resulted in substantial savings**

**Purchases cover wide range of equipment,
tools and materials used in industry**

**Annual savings range from a few hundred
dollars to as high as \$50,000**

THE following reports on equipment, material and parts expenditures, and changes in manufacturing methods, furnished by Purchasing Agents, ably substantiate that "Purchasing for Profit" is no idle theory.

They reveal that equipment and material purchases, and changes in production methods resulting from analysis and study of costs have resulted in increased production, lower costs, and time and material savings.

The annual savings reported as resulting from expenditures range from a few hundred dollars annually to five-figure savings up to \$50,000 in several instances.

Included in the purchases listed are machine tools, material handling equipment, welding equipment, plating equipment, fast-machining steel, plastics parts, electrical cable, crating lumber, oil storage tanks, powder metal parts and a widely diversi-

fied lot of other tools and equipment. Also, produce redesign, die changes, and changes in production and fabricating methods that have brought about big savings, are reported.

In one instance an investment of \$800 in new molding die resulted in annual savings of more than \$17,000. In another instance a \$1,000 investment for punching tools saved over \$16,000 and enabled inventory reduction of \$25,000 value.

A Southern manufacturer is saving more than \$66,000 annually by reason of change in packaging methods born of cooperative effort on the part of the purchasing and production departments, and in another instance, package analysis and redesign saves \$30,000 annually.

Another report of especial inter-

est is that of a Midwestern purchasing agent who states that the purchase of capital equipment, under a widely broadened outlook, is now tending to specification buying, resulting in wider competition and savings.

In many instances, purchases have been the result of recom-

mendations made by the purchasing department. However, purchasing agents emphasize that action upon such recommendations is taken only after a proposal has been thoroughly studied by all department heads concerned. They stress that modern purchasing is a cooperative effort looking first to company interest.

Seventeen Highly Profitable Purchases

R. M. Kimball

General Purchasing Agent
The Foxboro Company

PURCHASING starts the ball rolling when quantities increase enough so that we can save money by changing from castings to die castings and forging or from hand-made parts to those made with tools. When a part reaches the quantity where it can be made more economically by another method we check with Engineering to be sure we get all possible changes included which can save us money.

The following expenditures earned the yearly savings shown:

(1) \$2,000. for tools for new methods of forging which eliminated a number of parts and expensive machine operations. The engineering department did good work in making the most of this change. The piece price reduction plus cost of parts not needed, amounted to \$4.25 per unit. The annual saving on material alone was \$16,575.

(2) \$1,775. for die casting dies for latch and base to do away with sand castings. Saving \$.42 per set, or saving first year of \$6,030.

(3) \$3,000. for new tools and engineering to get better performance from the cylinders we use in connection with our instruments. This was a 50-50 purchasing and engineering job which is saving \$10,000. yearly.

(4) \$1,597. for die casting dies replacing sand cast junction box with cover and a complex machine operation. In cost of materials we saved \$.95 per set; annual saving \$1,900.

(5) \$1,945. for drawing and welding tools to make better and less expensive instrument saddle. Engineering and purchasing cooperated to get \$.80 saving; annual saving \$4,000.

(6) \$4,500. chip extractor, purifier, tramrail and sorting equipment to save 1½ persons' time in salvaging chips, oil and grease storage and to save an additional 1,000 gallons of expensive cutting oil. Annual saving \$6,000.

(7) \$500. for tools to produce a case and chassis previously formed by hand, saved \$10.50 per set, and on yearly quantity of 250, \$2,625.

A \$16,000 Saving

(8) \$1000. for punching tools, which was refunded at end of year. We started to procure a smaller chart drive to gain space in our cases, and ended up with a standardized drive which by a change of plates would fit all instrument cases. Drives could be made in quantity with a saving running from \$.75 to \$2.49 per movement, making an annual saving of over \$16,000. Also, we were able to cut our inventory \$25,000.

(9) \$800. for molding dies to use a regulator which manufacturer changed slightly to give us a better operating unit with an annual saving of \$17,640.

(10) \$100. to change pattern so that foundry could increase production and eliminate a large number of defective casings. Annual saving over \$1,000.

(11) \$25. for a simple tool to put a platinum iridium face on a base metal rivet for a contact instead of turning the contact out of bar stock. Annual saving \$2,180.

Our machine tool buyer realized a handsome profit buying second hand tools, by buying little used late models that have been put on the market through a business failure

or a change in product of user. Our shopmen could not believe that three of these machines were not brand new machines. Machines are as follows:

(12) Vertical miller; new price \$9,600.; bought for \$4,180. This machine improved the quality of work in our tool department.

(13) Jig borer; new price \$11,500.; bought for \$5,975. Machine used to eliminate overtime four nights a week for two men.

(14) Multiple automatic machine; new price \$46,000; bought for \$14,500. The reduction in cost of machining one part for a year saved the cost of the machine. We are putting more and more parts on this machine with a like percentage of saving.

(15) Redesigned case. At the request of the purchasing department, because of slow delivery, a complicated cast iron case produced by skilled molder, was redesigned to a drawn steel case with screw machine parts. Once in production, bottlenecks were eliminated, and cost was reduced to \$3.50 each instead of \$6.65. Yearly saving on production of 3,000, \$9,027.

(16) By purchasing a mercury oxifier for \$160. we are now salvaging in our plant all of the mercury contaminated in the process of manufacturing meters, at a cost only for the electricity used running the 1/12 hp motor. Previously we sent the material out to be cleaned, finding this service expensive, unsatisfactory and wasteful. By salvaging mercury with the oxifier, we are saving \$4,000. a year.

(17) Castings. When getting quotations for die casting to replace sand casting for our Model 40 Regulator, supplier suggested redesign. By the use of a very special insert recommended by the engineers of our respective companies, we saved \$1.22 per set by use of die castings, and also had an additional net saving (after paying for insert) in machining of \$.50 per set. Our annual production is 4,000; total saving \$6,880.

Recommendations by Purchasing Agent Save Tens of Thousands

*Packaging-shipping analysis alone saves \$90,000 annually
change in waste paper specifications makes another
saving of \$20,000 to \$30,000 a year*

HERE is a brief list of purchasing department activities, and recommendations made by the purchasing agent of a large Midwestern company, which effected savings running into tens-of-thousands of dollars annually. Of interest also is the recitation of a cooperative effort with shippers which made it possible to lower the inventory of finishing supplies from \$1,800,000 per month to \$800,000, over a period of three years. The various recommendations even include one covering typewriter carbon paper which brought out a more satisfactory sheet and also effects a saving of \$400. a year.

Analyzed container vendors, geographical location, shipping and manufacturing problems, reorganized shipping taking into consideration freight rates and manufacturing problems, promoted investigation of new corrugating mediums and liner, with resultant improvement in quality and savings of approximately \$90,000 annually.

Pushed the development of fast-drying carton inks to enable faster press runs, hence lower carton cost. By continually pressing vendors for better quality control, better cars for shipping and better materials handling have cut carton waste considerably at the converting operations. Machinery shutdowns are costly, therefore, the saving is great. By taking advantage promptly of lowering markets in raw materials, have pushed price decreases through faster.

Suggested use of lighter wall cores owing to improved quality in spiral wound paper cores.

Rewrote waste paper specifications (file stock) to provide better uniformity which enabled us to use more file stock at \$28-\$31 per ton to replace ledger at \$46. Saved \$20,000 to \$30,000 per year.

Organized shippers and control of shipments to enable our warehouses to lower the inventory of finishing supplies from \$1,800,000 per month to \$800,000. (This was done over a period of three years).

With the cooperation of the office manager, we ran a test on a lighter weight-harder finish typewriter carbon paper. Without changing source of supply, we found our source could supply a paper better for our use, that gave us improved copy while saving \$400.00 per year.

Suggested alternative enzyme which operating group were reluctant to try, since that being used performed satisfactorily. Price forced a laboratory look which was followed by mill trial with result it had full acceptance. Final result, two suppliers instead of one, at an annual saving of approximately \$22,000.

One mill was using a very cheap soap while another performing identical operations was reluctant to adopt the lower grade soap. Purchasing Department suggested several times that a trial run be made. Finally won out by having test run made, with satisfactory results. Cheaper soap adopted resulting in an \$18,000 a year saving.

Recommended to operating department that we change to a different grade of salt which was priced considerably lower than what was being used. This lower grade required less chemicals to process and also less handling costs. Lower grade adopted with \$26,000 per year saving.

Lift Truck Recommendation by Purchasing Agent Now Saves \$9,000 Annually

*Other money-saving recommendations by Canadian P. A. include
spot welding equipment, plating equipment, mobile
derrick, gas conversion for heating plant*

IN many instances during the past hectic decade, the purchasing agent was able to suggest many profitable changes in production methods because officials of the production department were too busily engaged in "getting the stuff out" to take the time to thoroughly investigate the profit possibilities of new equipment and methods.

For instance, mobile lift trucks were frowned upon for years because of the comparatively heavy initial cost. Finally the purchasing agent obtained approval for the pur-

chase of one gasoline-driven truck to move raw materials to and from the stockroom. This truck paid for itself in one year. Now we have six gasoline-operated and five electric lift trucks around our small factory. Annual saving \$9,000.

Pallets were first used to handle slabs of zinc and lead from railway cars to storage, thence to points of use. Now practically all raw materials, goods in process, and completed goods are handled on pallets except where they are conveyed in tote boxes. Saving \$7,000.

Our products being mostly of iron and steel, wooden tote boxes did not last long. Because they did not lend themselves to tiering, much valuable space was wasted. The purchasing agent was able to show that tote boxes made of steel plate, so constructed that they could be tiered, would save the company \$3500 per year, and more than half the floor space needed for storage.

Welding machines save \$6,000

Formerly, work requiring welding had to be farmed out. The P. A. was able to show the economy of buying a spot welder to do this work on the premises. Now little riveting is done; work is practically all welded on either spot or arc welding machines. Not only is the company now able to quote on a much wider range of work, but the saving in costs today would be over \$6,000 per year

Formerly much of our production required farming out for plating, in nickel, chrome, copper and zinc. Because we had no control over delivery dates for the return to us of the plated parts, the purchasing agent was continually in "hot water" with his production and scheduling people. After a thorough analysis, he convinced his people of the advisability of installing their own plating equipment. While the cash saving is only about \$3,000 per year, the new arrangement is very valuable from a customer-satisfaction standpoint. Work of the purchasing department is also considerably reduced.

Steel bars were transported from the storage yard to the production line on an iron truck or dolly, running on metal rails, and carrying about eight tons when fully loaded. To push this loaded truck over the 100 yards from point of loading each time necessitated the calling of eight or ten men from their work. The P.A. arranged for the installation of an electrically operated capstan, needing only one man to attach the wire rope to the dolly, the capstan then pulling the loaded dolly to the cutting shears. Saving \$1600. per annum.

A mobile mechanical derrick in the steel stock yard was an obvious

need for many years. Recently one was installed. Annual saving \$4000.

Installation of scale for weighing steel sheets and strips enroute from storage to production line not only improved cost accounting records during the year's operations, but saved a great deal of time when taking the annual physical inventory. Annual saving \$1600.

Two years ago, after a complete cost analysis by the P. A., plant heating was converted from coal to natural gas. This not only saved \$1500 a year, but proved very valuable during the recent coal shortage. It also saves much yard space needed for piling coal.

Savings Through Nylon Parts Recommendation by Connecticut P. A. May Reach \$10,000

*Faster machining steel, steel shear, included in purchases.
Cutting oil storage tank saves 10¢ per gallon*

THE following brief list of equipment and material recommendations made by the purchasing agent of a Connecticut manufacturer, reveals substantial savings:

Purchase of a shear last fall will show a yearly saving of \$4000. Savings effected due to elimination of purchase of small quantities of narrow widths. Advantage is in purchasing wide sheet from mills.

The purchase of faster-machin-

ing steel over the type previously used is a program begun early in 1949. Savings are unestimated because time studies have not been completed for many uses of the new type steel.

We expect that several thousand dollars will be saved yearly due to production of powdered metal parts which previously had been covered by sub-contracts.

Purchasing recommended the use

of plastic knobs and dials on our machines in place of chromium plated die castings. The initial savings came to approximately \$5,000, a figure that has been considerably increased over the past years due to the extended use of plastic. With the introduction of nylon on several additional parts this saving may reach \$10,000.

Recommended and purchased an impact screw driver to replace hand drivers for self-tapping screw operation. Cost of tool \$85. Saving, approximately \$2,000 per year in labor and tools.

Recommended and purchased 6,000 gallon tank for storage of cutting oil, thus saving 10¢ per gallon of oil purchased and labor required for handling of drums, paperwork, etc. Cost of installation was approximately \$500. Approximate saving, \$2,000 per year.

Carton Redesign Saves \$3,500 Annually

Other P. A. recommendations include electric lift truck and portable conveyor which quickly pay for themselves

THE Purchasing Agent of a Brooklyn, N. Y. manufacturing company, made the following equipment recommendations which were fully approved, and which resulted in substantial savings:

Air stapler. Closing carton by the use of an air stapler resulted in a 200% increase in production. Staples

are easily removed by hand tool, making carton available for reuse.

Carton redesign: By having supplier redesign cartons to an "egg crate" partition type, instead of using individual carton inserts, a yearly saving of over \$3,500. was made.

Electric lift truck: Purchase of an electric automatic lift truck for

loading and stocking resulted in sufficient savings to pay for the equipment the first year.

Bandsaw for toolroom: This purchase eliminated much costly roughing-out work on both the shaper and the miller, saving approximately \$4,500 a year.

Portable conveyor: Purchase of a portable conveyor loader resulted in sufficient savings to pay for the equipment in the first six months. The speedy handling of ashes, core sand, molding sand and refuse accounted for some of the saving, and permitting refuse truckman to use the conveyor resulted in a lower trucking rate.

Save \$3,000 Against Quoted Price of \$8,000

*Standardization of transformers to conform to National Standards
results in saving of about 10%*

A MIDWESTERN purchasing agent reports the following half-dozen activities which have resulted in considerable saving, and emphasizes that the savings made would be impossible without the co-operation of other departments.

(1) We buy expensive capital equipment and therefore incur substantial annual charges for replacement parts. Since there is only one vendor for the parts for given pieces of equipment, we have to make special effort to insure that we are getting the best possible price for the

parts. We either work directly on the vendor with our analysis of his costs, or alternately, we have the parts made locally including the preparation of drawings, specifications, patterns, etc. In one of the latter cases we saved \$3,000 against the manufacturer's original quotation of about \$8,000.

(2) We have worked out a substantial standardization of our transformers to conform with National Standards, resulting in a saving of about 10%.

(3) In buying capital equipment,

many specific makes tend to be preferred by engineering and operating people. We have, however, widely broadened the outlook so that we now tend to buy by specification, thereby obtaining greater competition and savings.

(4) We use substantial quantities of lead covered, high voltage, underground cable, and last year changed our specifications so that we can use a thinner-wall lead with a much less expensive outer covering. This is particularly important when the lead market is strong.

(5) A number of our vendors are now stocking items for us, thus reducing our inventory and inventory costs.

(6) We are now buying carbon paper without imprint of trade name of vendor, and save approximately \$400. per year.

Saving Through Carload Lumber Purchases

R. F. Plimpton

Purchasing Agent
Electro Dynamic Works of the Electric Boat Company

FOLLOWING are some examples of substantial savings made through judicious purchasing during the past year:

(1) Carload lumber: The purchasing department had been advised that space was not available for a carload of crating lumber at any one time, hence purchases were placed with local yards for small quantities. We made study of our yard space, and found that suitable storage space was available. Since, our crating lumber is bought in carload lots at an estimated annual savings of \$1,906.

(2) Lamp purchases: Purchasing department received an offer of an additional 10% discount on incandescent lamps. Office circuits were equipped with equal quantities of lamps from three manufacturers, and record of life of lamps was kept for fourteen months. Average life of lamps from new vendor was 12.7% greater than that of lamps from former sources.

(3) Motor insulation: Substitution of paper-cellulose acetate composite insulation for electric motors, in place of cambric paper composite slot insulation saves \$340. annually

due to lower price. The insulation quality is equal.

(4) Tape: The introduction of a cloth adhesive tape of a quality suitable to the job, replacing a tape of too high quality, saves \$450. annually.

(5) Checking list of inactive steel stock, supply of silicon sheet steel was located that met requirements of new requisition, thus saving \$556. on the prevailing purchase price.

(6) Invoices: Our billing section catches over \$100 in errors in vendors' invoice monthly, which represents 0.2% savings on total invoices. In this connection, the purchasing department makes an overall saving for the company of 3.3% on all purchases.

\$25,000 SAVING ON CONTAINERS

J. L. Wells, general purchasing agent for the Lockheed Aircraft Corporation, Burbank, Calif., reports taking advantage of drop in the Douglas fir plywood market to consider plywood as a substitute for 1" x 12" Ponderosa pine boards used in the construction of wooden exterior containers for U. S. Air Force and Navy airplane spares

shipments. As a result, 1/2" plywood is now used, the requirement for waterproof paper lining is eliminated, and an additional saving in sawing time is realized. Total savings are more than \$25,000 a year.

Flashwelder: Replacement of hand butt welding of extension drills with an automatic flashwelder operation, is making a daily direct saving of \$25., both in time savings and through elimination of excessive weld breakage of handwelded drills.

PALLETIZING SAVES 75% TO 85% IN HANDLING COSTS

Study by large Midwest Company of palletizing wax cake shipments, demonstrates that such analyses are well worth while. Caked wax, formerly in cartons, now is specified on paper expendable pallets, saving 1/2¢ per product pound in the container cost; and, perhaps of more importance, a decline of 75% to 85% in handling costs from the inbound carrier and through the processing plant.

Export Packing: Perhaps the most fragile container used in the branded motor oil business is the 5-gal. dome top rigid external spout type known as the kerosene style or spout can. Internal packing for the corrugated paper box has proven a necessity to protect the fragile spout. Internal packing specifications to include four corner pads and a top collar have proven successful for the domestic market, even with several rehandlings of the filled package.

However, for export usage this type of packing proved unsuccessful, damages at destination exceeding, in some instances, 50% of the shipment. After careful testing, one packer developed a master carton of A-flute 275# test corrugated. Principle of the master box in the A-flute permits maximum shock absorption without damage to the rigid external spout. It also makes for economy in the packing plant, merely involving a supplemental packing for the occasional export order, effecting efficiency with a minimum of labor cost. The new type package has proved quite acceptable.

INCREASES OF 200% TO 300% ON MACHINING JOBS

Director of Purchases, Del Roskam, Cessna Aircraft Co., Wichita, Kansas, supplied the following report on three machining jobs, that are of interest because of the fact production was increased 200%, 300% and 350% respectively:

(1) Drilling of three holes in a rectangular spacer block one hole at a time on a single spindle drill press, averaged 118 per day. By the simple addition of a multiple spindle head adapted to the same drill press, production now averages 250 per day—an increase of over 200%.

(2) The machining of a cast iron nut for a hydraulic cylinder, consisting of rough and finish boring, finish reaming grooves, counterboring, chamfering and tapping, on a No. 5 turret lathe averaged 12.5 per hour. After adapting the job to a 5-spindle chucking machine with a tapping attachment, production averaged 50 per hour an increase of over 300%.

(3) In a job of machining ten grooves around a $\frac{7}{8}$ " bar for a limit stock, bars were machined one at a time on an automatic turret lathe. Production averaged 104 in eight hours, or 13 per hour. By adapting job to a five-spindle bar machine, production jumped to 49 per hour, for an increase of over 350%.

PACKING SAVINGS TOTAL \$66,000 ANNUALLY

(1) A large southern industrial manufacturer was using standard accepted package for mineral wool batt insulation. Through collaboration between the superintendent of the wool plant and the purchasing agent, a new carton was developed having a formed tube and inverted ends which were wire stitched in closing. The new design provided not only a stronger package, but

since it used the least amount of boxboard it was purchased at a saving of 15% which amounted to over \$16,000 per year, based on annual consumption.

(2) About a year later an attractive multi-wall bag design was worked out in a cooperative effort by the purchasing agent, the plant superintendent and the sales department, which reduced packaging cost another 50%, amounting to an annual savings of approximately \$50,000.

(3) Acting upon suggestion of the purchasing agent, order quantity of a processing oil was increased from small drum lots to 50-drum lots—or a full transport truck. This resulted in saving of over 10% in cost, which amounted to savings of \$1,000. per year.

SAVE ON PRINTED FORMS PATTERN PLATES AND TAPE

Here are two cases of savings reported by the Detroit Edison Company, Detroit, Michigan:

(1) Pattern plates for printed forms: Majority of forms used are printed from own electroplates, pattern plates being made from the type. Pattern is held by the electroplater and is used only to make new plates in case of wear, loss or damage to the original plates. A new plastic product intended for newspaper mats, with the assistance of the electroplater was adapted for pattern use. These are 50% cheaper, and as good as metal electroplates. The savings will be cumulative.

(2) Electrical tape: Electrical tape was purchased in 22-yd. rolls in tin containers. Purchasing department learned the tape could be purchased in 36-yard rolls in cardboard box at a reduction in cost of 20%. A saving of \$1,070 was made on the initial purchase.

CHANGES IN METHODS SAVE \$6378 ANNUALLY

S. S. Wiley, purchasing agent for the Lyon-Raymond Corporation, Greene, N. Y. reports that his company (1) was using a weldment consisting of 18 pieces of steel fabricated into a wheel suspension unit. The cost of material and fabrication was \$19.80 each. A pattern was purchased for \$65. and the part was made from a steel casting. The cost of the castings is \$7.21 each. Annual saving \$3,722.

(2) The cost of machining an aluminum casting into a wheel was \$2.52 per unit. Machining the wheel from #24St aluminum bar stock, the wheel was made for \$1.69. Annual saving \$1,328.

CARTON SAVINGS AMOUNT TO \$30,000

The Fuller Brush Company had been using approximately 15 different size shipping cartons, and new sizes were frequently added. By making a thorough survey of the various carton uses, reports Purchasing Agent N. T. Drummond, the number of different types was reduced to six. Previously cartons were of solid fibre which is more expensive than corrugated. In the six sizes decided upon, the number of solid cartons was reduced to two, corrugated being substituted for the other four. The total overall saving due to the elimination of inventories and larger volume on fewer sizes, amounted to over \$30,000. Due to better control of inventory a considerable number of emergencies was also eliminated.

SUBSTANTIAL SAVINGS ON SHAVINGS AND SPRINGS

Freight rate on sawdust or shavings is fixed at 30,000 lbs., and there was a tendency on the part of suppliers not fill the cars as full as they should be filled, with the result that freight was being paid on material that was not received, according to G. C. Segin, general purchasing of the Norton Company, Worcester, Mass. A system of purchasing shavings on a per ton basis, having suppliers fill larger cars as full as possible was inaugurated. Last year the saving was \$2,000, and it is anticipated that the saving will be much greater in 1950.

The company's machine division, over a period of years, used a considerable quantity of special springs which are given part numbers. There were innumerable small orders for small runs which were quite costly. By utilizing stock springs from a nearby supplier the Norton Company was able to eliminate over 50% of the special springs. This called for close cooperation with the engineer in charge of standards. In 1948, saving through the use of stock springs amounted to \$6,500. In 1949 the savings were about \$2,700, purchases not being as great as in the former year.

SAVE 25% BY USING PRINTED ACETATE LABELS

J. R. Fuller, division purchasing agent, Sylvania Electric Products Co., Salem, Mass., reports an annual saving of more than 25% through the purchase of a printing machine for printing rating labels on acetate tape, instead of purchasing another type of printed label.

Planning - Purchasing - Production Cooperation that Pays Off



H. W. Macintosh

Buyers trained to keep informed about new developments in methods, materials and equipment

Bills of material scanned for possible money-saving changes, and recommendations made to engineering

Interdepartmental cooperation has proved highly profitable in lower material and product costs

●
By H. W. Macintosh

*Director of Purchases and Treasurer
L. O. Koven & Bro. Inc.*

THE Purchasing Department, if given proper authority, is in an enviable position to place before management and the various departments, information about new cost reducing equipment and improved materials, that may be of far reaching importance to company operations and costs.

In our Purchasing Department a careful study is made of the new and improved tools, supplies, basic materials, machines, etc., that are

constantly coming onto the market. Each of our buyers is trained to be alert to their possible application in our operations.

We stress the fact that our men are *buyers*, not order-placers. They are expected to know what they are buying, and if they are not thoroughly familiar with an item, to dig in, ask questions and become informed so that they can do a better and more intelligent job of buying.

Also, we make it a special point

to stress that all departments in our organization are free to call on us for help or information pertaining to anything they may be interested in. Department heads are invited to present their queries and material or equipment problems to Purchasing, and we do everything possible to obtain information, or a product or supply that will be of help to them. If required, we arrange for necessary interviews. This helps to keep us informed as to what is going on in the minds of management and various department heads, and we are better prepared to meet a situation when it develops. It also helps vendor-salesmen by making possible more satisfactory and quicker interviews, and salesmen now recognize that Purchasing is their first point of contact with our company. This policy has been established by our management, which recognizes the dollar and cents importance of interdepartmental cooperation through the Purchasing Department.

When a new or substitute item is suggested by the Purchasing Department, the buyer fills out a very simple form or questionnaire in triplicate, one copy of which is submitted to the foreman of the department concerned, one to the superintendent of the shop and one copy is for our files for follow-up in case we do not receive a reasonably prompt reply. The copy that is sent to the shop is for return to us with comments or recommendations duly signed by the individual responsible and we in Purchasing act accordingly. This copy is placed in our files for future reference as a check on what has been accomplished by the purchasing department along these lines over the year.

We manufacture not only heating boilers, domestic tanks, automatic heaters, etc. in production, but also do a considerable volume of custom fabrication for industry both large and small. These jobs are designed

(Please turn to page 418)

Profit Opportunities Abound in Production Tools and Equipment

PURCHASE price is a relatively small factor in the dollar savings that can be achieved through the selection and purchase of production tools and equipment best suited to the end use. Such savings show up in faster and more economical production operations, lower labor cost per unit of product, less downtime on machine tools, reduction of scrap losses, elimination of intermediate or finishing operations, and dozens of similar contributions to increased manufacturing efficiency.

Instances can be cited in which the purchase of such equipment has literally "paid for itself" and offset the initial cost within a few weeks or even hours of operating time.

For this reason, and because of the wide diversity of items and applications in this category, the cost saving opportunities inherent in production tools afford a tremendous potential field for alert and systematic study on the part of the cost-conscious buyer and production man who will review plant operations with an open mind, looking to the end results.

To take full advantage of these opportunities it is necessary to keep abreast of the important technological advances made in the equipment field. The problems of working with new material and alloys, having highly desirable properties in themselves but requiring new fabricating techniques to make them practicable for use, have stimulated corresponding progress in operating methods and in the character and design of production equipment.

While many of these developments were originally directed to specialized uses, the possibilities of their application are actually much broader than the first intent. Meanwhile, standard basic procedures such as welding, stamping, casting, extrusion, and others, have been improved, as have the design and properties of cutters, dies, and similar accessories to those operations.



Equipment manufacturers provide the means for greater productivity at lower cost

Modern production tools pay for themselves quickly through better performance

Wide range of products and uses presents tremendous opportunity for savings

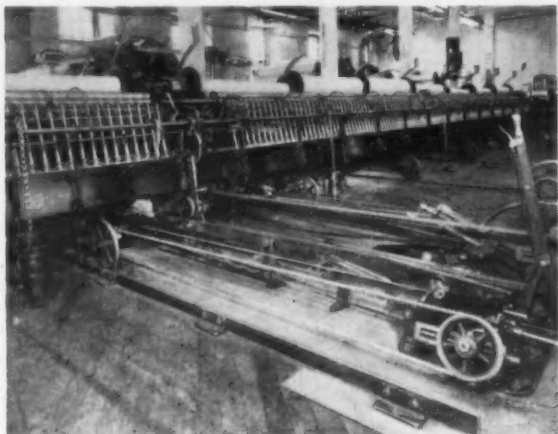
Net result is that fabricating methods hitherto impracticable or even impossible are now available as regular production practice, and substantial production cost savings have been effected.

The case history examples reported on the following pages show a variety of instances in which complex procedures have been simplified or replaced, operations eliminated, tool life and product quality enhanced, tool cost cut in half, and production increased tenfold or a hundredfold. They deal with such widely diversified types of equipment as abrasives, brazing, broaching, casting, cutting, flame cutting, deep drawing, dies, drill fixtures, feeders, fire protection, hand power tools, injection molding, mold liners, riveting, sawing, scoring,

stapling, stamping, tapping, tempering, wire stitching and several types of welding. The right equipment for even such prosaic requirements as delivering tools to the job or a modern system of controlling issues from the tool crib have contributed surprisingly and substantially to the success of cost saving programs.

And these are but a few representative cases of what can be—and has been—accomplished. These examples could be multiplied many times over. Similar opportunities for improved practice, greater output, and dollar savings by putting modern production tools to work can be found in almost every plant. These opportunities can be realized only through knowledge of available equipment, initiative in applying it, and purchasing for profit.

Production Tools and Equipment



Nylon Ropes Reduce Downtime

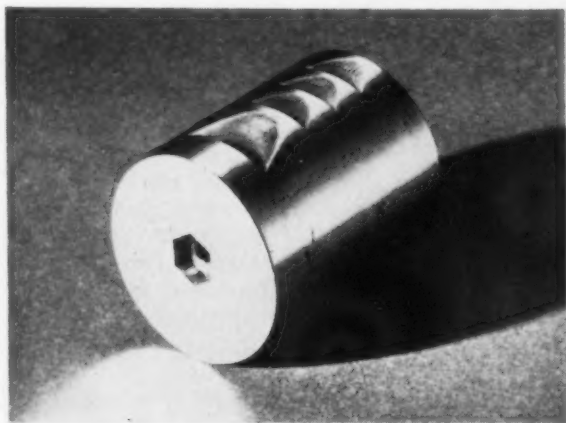
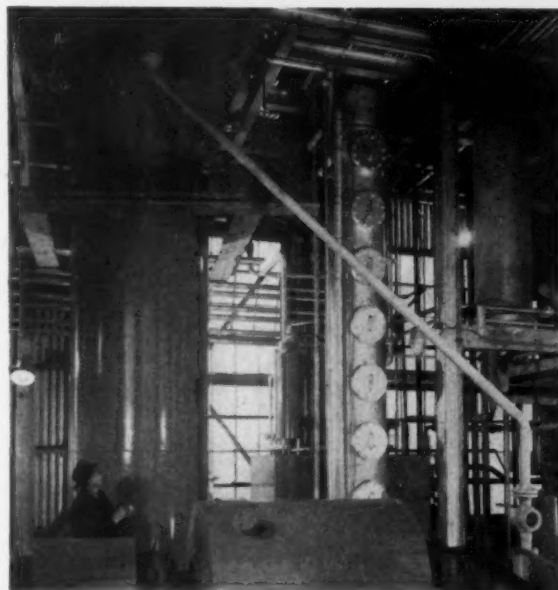
These carpet looms in New York textile mill have been equipped with nylon textile rope as needle rope and knife rope. Previously cotton ropes wore out rapidly, with consequent repair expense and shutdown time of loom. Life of cotton rope was about 4 months. The nylon rope has life of 24 months. Thus production is increased through elimination of downtime, and maintenance and repair costs are greatly reduced.

COST SAVING ITEM—201

Saving \$185,200 to \$235,200 Annually

The Delta Products Co., Wilson, Ark., replaced a 50-year old hydraulic press method of extracting cottonseed oil, by installing a new chemical solvent extraction unit. New unit increased production as much as 33 lbs. per ton of cottonseed. With solvent extraction four men can do the same job as can 12 men with the hydraulic press. Net profits of \$4.77 to \$6.02 per ton are realized, as compared with \$0.14 per ton by the previous method. This shows a saving based on 200 working days per year, at input capacity of 200 tons of cottonseed per day, of \$185,200 to \$235,200 annually.

COST SAVING ITEM—202



Production Runs Lengthened 10 to 40%

Prominent bolt manufacturer's heading dies, thread rollers and other tools, following heat treatment, did not always give desired production life, causing downtime and lost production. The company installed a controlled atmosphere furnace for hardening and a forced circulation furnace for tempering. Tools and dies coming from the new furnaces met all specifications and lasted much longer. Cold heading dies such as the one shown now permit bolt making machinery to run from 10 to 40% longer without shutdowns for retooling. Production from other machines is correspondingly increased.

COST SAVING ITEM—203

Production Tools and Equipment



Wire Stitching Cuts Labor Cost 80%

An Oklahoma manufacturer of all-aluminum trailers replaced riveting and spot welding with wire stitching for assembling wheel body frames, insulation on windows and doors, other light frames, and air vents, at a saving of 80% in the labor cost. In approximately two hours a day one man does the work that formerly took five men six hours to perform.

COST SAVING ITEM—204

Staple Hammer Cuts Costs 90%

A Midwestern manufacturer of commercial refrigerators changed from roofing nails to a heavy duty self-feeding staple hammer for tacking solid fibreboard sheets to wooden frames for manufacturing shipping crates, saving 80% over the cost of the former method.

COST SAVING ITEM—205



Infrared Aids Precision Casting

This installation is an unusual one at the Westinghouse Electric Corp. East Pittsburgh plant. It is used to replace steam tables, low temperature ovens and hot plates, in drying molds and melting out 98% of the wax pattern in precision "lost-wax" casting. The balance of the wax is burned out in a preheat furnace where molds are heated to 1000° C. for casting. There are eight lamps in the cross section. The oven is 8 sections long, making a total of 256 250-watt lamps. In making gas turbine blades and other intricate or hard to machine castings, the infrared process has been found to reduce mold cracking, thereby eliminating many defective castings.

COST SAVING ITEM—206



Production Tools and Equipment



Production Tripled; Dressing Costs Reduced 80%

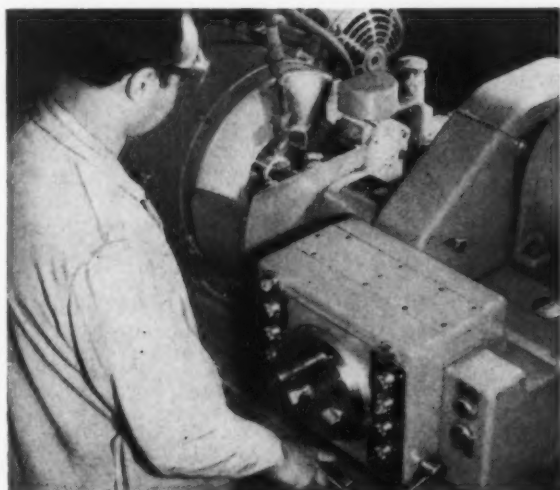
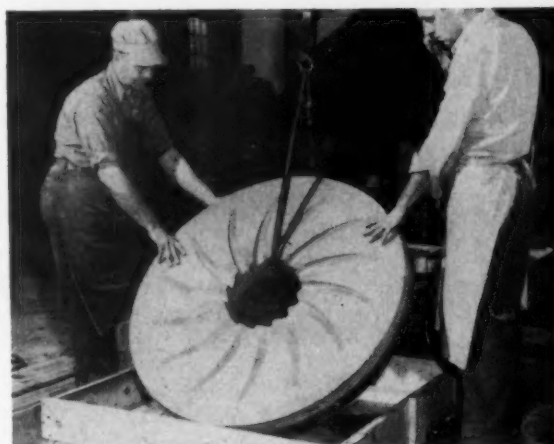
Production of corn starch was increased from 1500 bu. per 24-hour day to 4500 bu. along with an additional 5% recovery of starch by use of manufactured abrasive millstones to replace natural sandstones in Midwestern plant. Further, dressing costs including stone handling, were reduced from \$400 per month to \$80 per month for each mill, since the manufactured millstones required dressing only once every 30 days as against one dressing every four or 5 days for the natural sandstone.

COST SAVING ITEM—207

Manufactured Millstones Double Production

A large chocolate manufacturer doubled production from 300 pounds per day to 600 pounds per day, producing finer grained chocolate and liquor, by replacing natural millstones with manufactured abrasive stones. In addition, there was a saving of \$620 per year for each mill in dressing costs.

COST SAVING ITEM—208

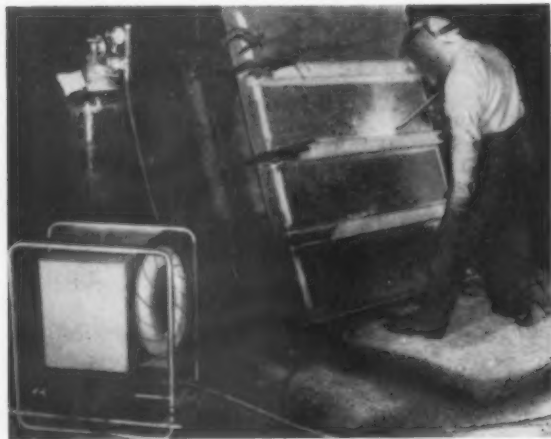


Grinding Time Reduced from Six Minutes to 1½ Minutes

A glass manufacturer doubled production rates by installing metal bond diamond wheels for pencil edging auto lites. Improved metal bonds made it possible to double production again, more than justifying the additional cost of the diamond wheels. Auto lites 48" in circumference were ground in 1½ minutes as compared to grinding time of six minutes with vitrified wheels formerly used. Production life of first diamond wheel was 250,000 lites, dressing being required after each 5000 grinds. With the improved metal bond diamond wheel total production was raised to 130,000 units, and dressing was required only after each 20,000 units.

COST SAVING ITEM—209

Production Tools and Equipment



Three Hours' Work in Fifteen Minutes

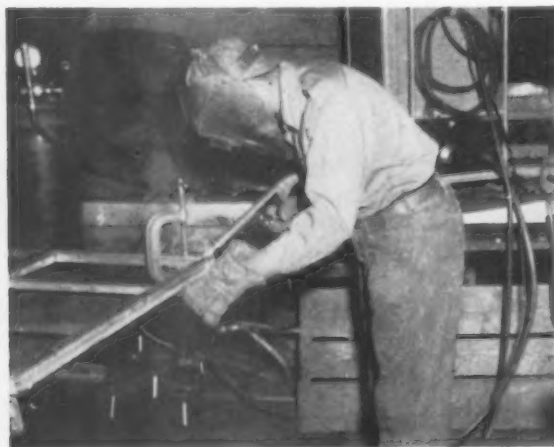
Here's another time-saving welding job centering around the use of helium welding with continuously fed consumable wire. Prior to the utilization of this process, three hours' time was consumed at plant of the Martin-Quaid Co., Philadelphia, to weld a 4' 1 $\frac{5}{8}$ " x 5' aluminum tank section with an inert-gas shielded arc process. Feeding 1/16" drawn aluminum wire through the gun at speeds up to 208 inches per minute, the welding time was reduced from three hours, to 15 minutes. Current: 208 amps. d. c.

COST SAVING ITEM—210

Single Operation Replaces Four

The Hunter Fan & Ventilating Co., Memphis, Tenn., has replaced four operations to cut 1/8" keyway in die cast aluminum by a single operation through the use of a production type keyway broach. In addition to effecting a reduction in cutting time of 75%, the company has also found that the initial tool cost was greatly reduced. In various sizes the push type broaches used cost no more than a single conventional tool.

COST SAVING ITEM—211

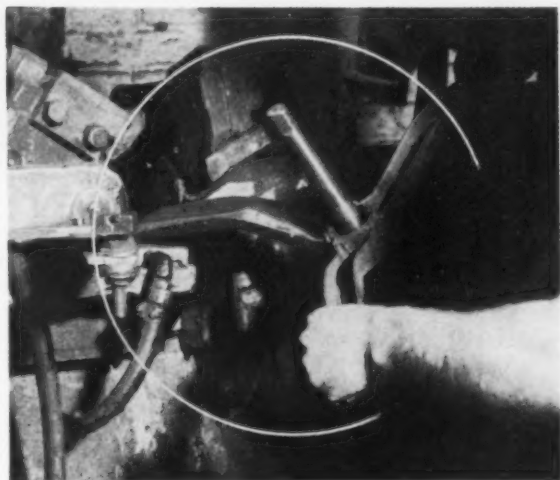


Helium Welding Breaks "Bottleneck"

Bottleneck in production of aluminum window sash and frames at plant of the J. S. Thorn Co., Philadelphia, involving welding 1/4" hinges to 1/8" aluminum frames, was broken by the introduction of helium welding process in which non-consumable tungsten electrode is replaced by continuously fed consumable wire. The wire is fed to the work through barrel of welding gun. Individual welds were made in as little time as 5 seconds, the welding being 1/4" x 1 1/2" long. In this work 1/16" 43S drawn aluminum wire was fed through gun at the rate of 175' per minute.

COST SAVING ITEM—212

Production Tools and Equipment



Production Increased from Two Units Per Hour To One Unit Per Minute

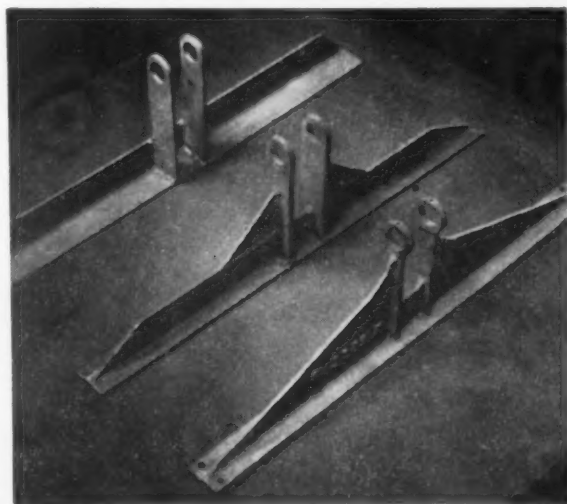
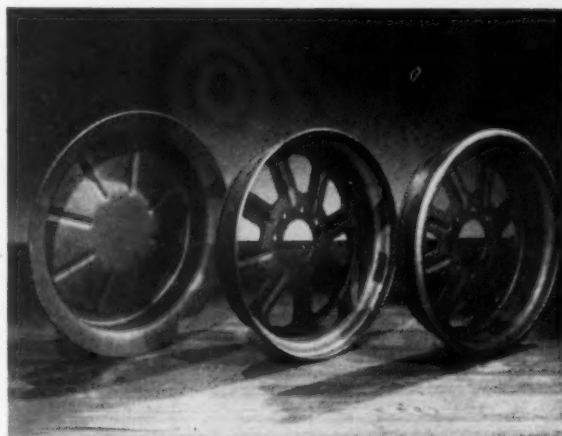
Before adapting resistance butt welding in the production of "drum spiders" for automatic clothes dryers, production was at the rate of about two units per hour in plant of the Hamilton Manufacturing Co., Two Rivers, Wis. With flash-butt welding, production has been increased to *one unit per minute*.

COST SAVING ITEM—213

Eleven Operations Reduced to Three

From heavy sheet stock to finished railroad wheels in only three operations, is record of 1500-ton press installed at Fairbanks, Morse & Co., Three Rivers, Mich. Previously these steel wheels for railroad work cars, required 11 separate steps to complete. Not only did the press reduce operations to three, but it reduced production costs, reduced maintenance costs, reduced man power requirements, and reduced floor space. Production record on this extremely heavy stamping job reads as follows: First operation — 100 per hour; second operation, 129 per hour; third operation 144 per hour.

COST SAVING ITEM—214



Arc Welding Reduces Cost From \$2.57 to 71c

Substantial savings in cost, time and weight have been reported by The Schaeffer Poidometer Co., Pittsburgh, Pa., in changing from a conventional method of manufacture, to arc welding in the production of beams for use in poidometers,—continuous weighing machines. Conversion to arc welded design lowered cost of beam from \$2.57 to 71¢. The picture shows (right) original cast design, cost \$2.57; first redesign, cost \$1.63; and (left) final design, cost 71¢. Material weight was cut 25%. In addition there was saving of .028 man-machine hour on machining the steel piece as compared with the former construction.

COST SAVING ITEM—215

Production Tools and Equipment



Radio Cabinet Production Doubled

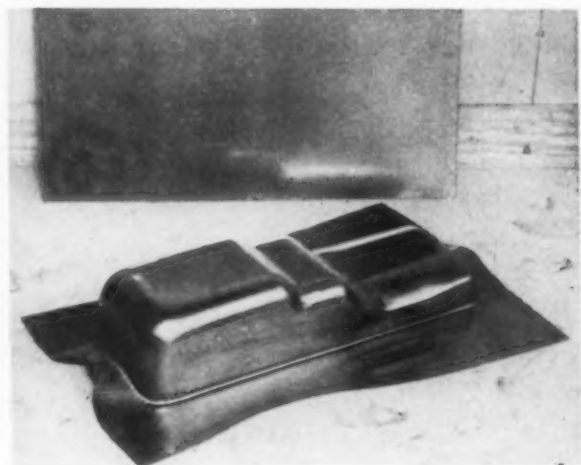
To meet demand for its new table model radio, a prominent radio manufacturer needed 250,000 radio cabinets promptly. Installing a 16 ounce injection molding machine, radio cabinets of polystyrene were produced on a three-fold saving basis: (1) Production was doubled over conventional phenolic cabinets; (2) finishing operations were eliminated; (3) Use of polystyrene made possible unlimited color selection without expensive painting.

COST SAVING ITEM—216

350 Oil Pans Per Hour on Deep Drawing Press

Prominent Midwestern stamping company installed a 750-ton deep drawing press to meet service requirements on deep automotive oil pans. In addition to a production rate of 350 oil pans per hour, scrap loss was cut from 3½ to less than 1%, and the drawing operations were reduced on one job from two to one.

COST SAVING ITEM—217

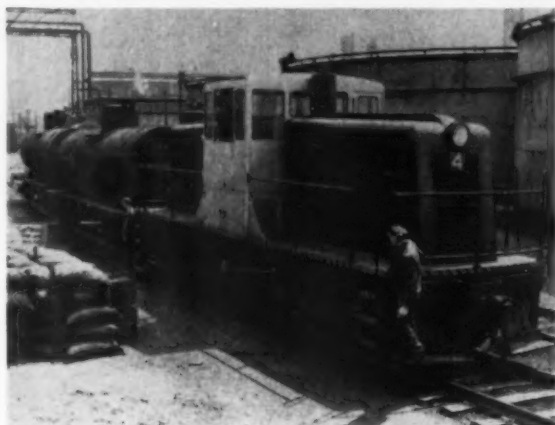


Stud Welder Increases Production 1500%

Stud welder equipped with automatic stud feeding mechanism, index table and ejection features, is reported by automotive hardware supplier to have effected a 1500% increase in production. One operator can now perform upwards of 3,000 welds an hour, whereas previously it required four employees to silver solder 800 pieces per hour. Material handling costs were drastically reduced by permitting the weld to be performed after the part had been plated. Welds are made without flux and material costs were further cut by replacing silver solder with studs.

COST SAVING ITEM—218

Production Tools and Equipment



Diesel-Electrics Save \$40,000 Annually

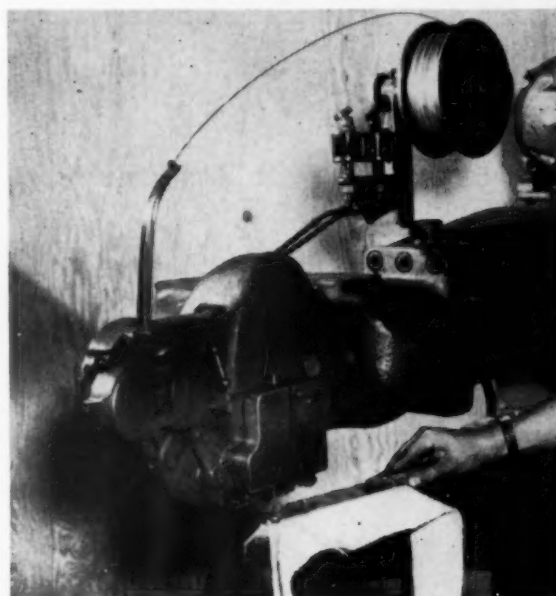
Two diesel-electric switching locomotives are saving an average of more than \$40,000 a year for a New Jersey chemical manufacturing firm. The locomotives, one 44-tonner and one 65-tonner, replaced two steam locomotives. Fuel savings alone are averaging about \$5 per hour for the two switchers, maintenance costs have been slashed, and water costs of \$2 per hour have been eliminated. The diesel-electrics have swivel-trucks and there have been no derailments; also, track maintenance has been reduced.

COST SAVING ITEM—219

Production Increased 700%

The Holland Furnace Company, Holland, Mich., saves 79% on the costs of fastening asbestos cloth to steel frames, by means of a metal stitcher. The number of assemblies per hour was raised more than 700% after riveting was replaced by metal stitching. No. 15 to 20 zinc-coated aircraft-quality wire stitches are used, costing less than half a cent per frame.

COST SAVING ITEM—220



Molds Used for Two to Three Months Without Cleaning

Nichols Engineering Co., Bridgeport, Conn. had high maintenance costs turning out rubber moldings. Company operates 256 cavity deep draw molds on a 6 minute cycle at 355° F., which in combination with thin walled moldings presented a tough release problems and high reject rates. By using a silicone mold release emulsion, products were given good finish with minimum reject rate. Molds can now be operated continuously, 6 days a week, for 2 to 3 months without cleaning.

COST SAVING ITEM—221

Production Tools and Equipment



Tool Pays for Itself in 1½ Hours

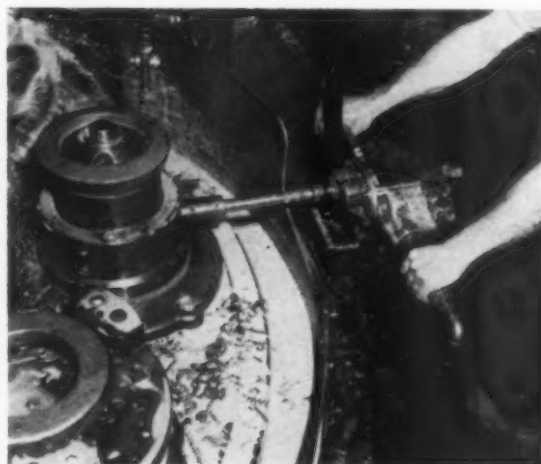
Chemical plant had a job involving tightening and loosening of electrode clamps on a phosphate furnace, the bolts being 2½" in diameter. An air-powered impact tool was suspended and counter-balanced so that only one operator was required. The electrodes are advanced 6 times every 24 hours. Under former methods the operation averaged about 12 minutes, and required three if not four men using 10 foot open-end wrenches. Now the job is done by one man and requires but three minutes. The company reports that the tool, costing \$700, paid for itself in 1½ hours of use, based on power savings, material savings, saving in labor costs, and reduction in furnace down-time.

COST SAVING ITEM — 222

\$3,000 Cost Paid Off in 60 Days

An automobile manufacturer installed a reversible air motor to operate a jig check on a machining operation. Production increased from 32 to 37 units per hour. In addition, the air motor eliminates operator fatigue, along with uniform tightness in the chuck and greater accuracy. Six units were installed at a cost of \$3,000, which paid for themselves in 60 days.

COST SAVING ITEM — 223

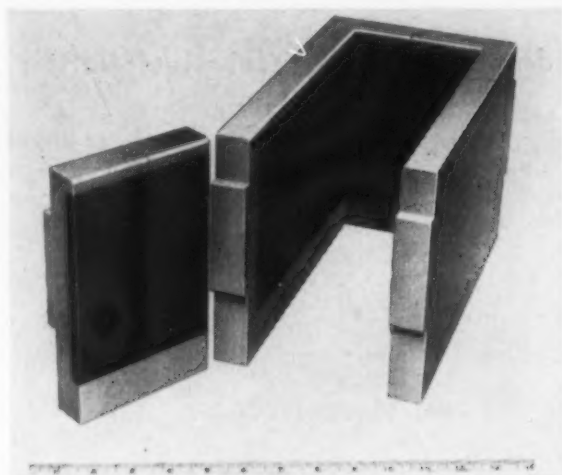


Mining Company Saves 40% on Bits

Cost of steel bits and rods used by large mining company was approximately \$0.464 per ton. Changing to hard insert bits, this cost dropped to \$0.278 per ton, or a per ton saving of 40%. Indirect savings included reduced air consumption, and increased drill footage per shift.

COST SAVING ITEM — 224

Production Tools and Equipment



Save Four Days' Production Time

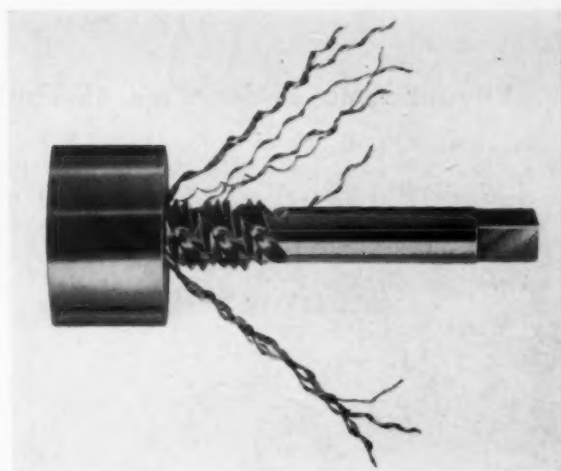
Mold liners made of cemented carbide showed practically no signs of wear after a run of 42,000 silica brick, according to a large West Coast brick factory. Liners formerly used had to be reground or replaced after a run of only 8,000 to 10,000 fire brick, it is claimed. Therefore, such an uninterrupted run means a saving of approximately four days of production time, since changing liners in the brick molds requires one full shift.

COST SAVING ITEM — 225

Tapping Speed Increased 100%

A Canadian manufacturer reports that tapping speed was increased 100% by the use of a thread forming broach. The broach was used to produce $\frac{7}{8}$ -9 threads in steel forged cap nuts, depth of thread being $1\frac{1}{4}$ inches.

COST SAVING ITEM — 226



Save \$18,000 Bill for Diamond Cutters

When designing new building the Flour Mills of Recife, Recife, Brazil, specified heat-absorbent glass windows. Panes had been cut to specifications when it was discovered that frames had to be altered, making it necessary to cut panes to new size. Conventional diamond glass cutters were ruined after making two cuts each on the irregular surface of the panes. A simple glass cutting device was rigged up using a cemented carbide tool as cutter. The required 2,400 cuts were made without appreciably dulling the tool, saving an estimated expenditure of \$18,000 for diamond cutters.

COST SAVING ITEM — 227

Production Tools and Equipment



Powder Driving Tool Cuts Installation Time in Half

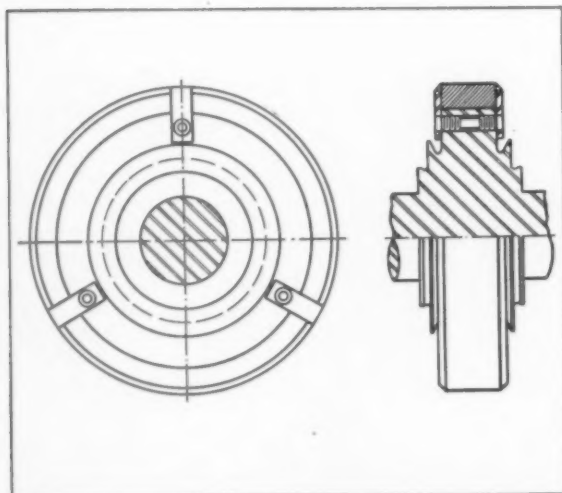
Finding that two carpenters and helper could install only 10 or 11 metal door frames per shift using conventional methods of drilling into concrete and sinking expansion bolts, J. W. Bateson Co., contractors, Dallas, Tex. turned to powder-actuated driving tools. The tools, which weigh less than 5 lbs. imbed studs in a fraction of a second by the discharge of a blank cartridge. With this tool 2,200 door frames were installed in half the time previously required.

COST SAVING ITEM—228

Payout Time 10 Days on 46 Tools

An equipment manufacturer learned by test that air-power screw drivers were 80% faster than methods in use. An initial lot of 46 tools costing \$3,680 paid for itself in ten days. Daily wage for 46 operators was \$460. Daily saving was \$368—80%.

COST SAVING ITEM—229



Customer Gets 100 to 1 Production

Can manufacturer was using scoring and anvil rolls for double scoring blank tinned sheet for key-opened cans, such as coffee or tobacco cans. Production on anvil roll was 250,000 perfect blanks per grind. Because of maintenance cost the rolls were allowed to run up a million blanks before regrinding, sometimes affecting quality. Two and a half years ago, a carbide anvil roll was installed. It has produced more than 100,000,000 perfect blanks without grinding or dressing, and only one half the width of the roll was used. Roll has now been reversed end for end, and another two and one-half years' run is expected, making five years' service without grinding or dressing. At less cost, company is getting more than 100 to 1 production from this equipment.

COST SAVING ITEM—230

Production Tools and Equipment



Air-buck Riveter Saves \$8.75 per Day

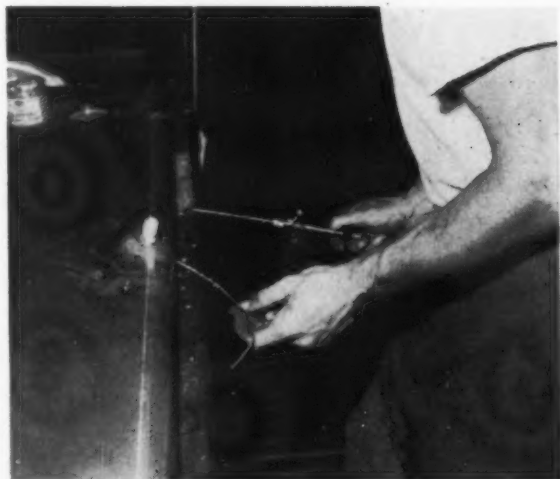
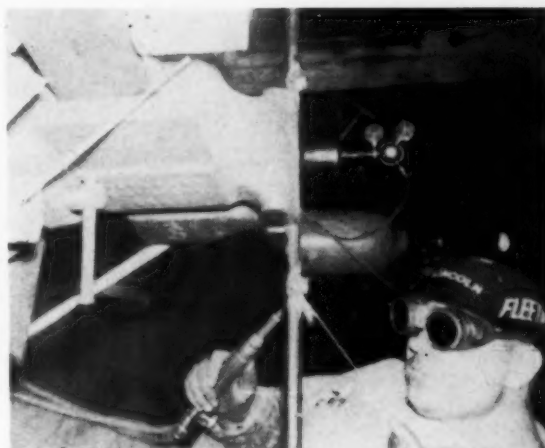
A metal furniture manufacturer faced with the problem of driving rivets to a predetermined grip to permit a hinging action, installed an air-buck riveter. The machine made such remarkable savings on the exacting job, that it paid for itself in twelve days.

COST SAVING ITEM—231

Welding Cost Reduced 75%

Selecting the right welding rod, cut weld cost 75% in manifold production by Friend Manufacturing Co., Gasport, N. Y. Formerly welding $\frac{3}{8}$ " steel nipples onto $\frac{1}{4}$ " pipe cost 21¢ plus gases and flux. Rod consumption averaged 12" per nipple and job required build-up. Each nipple had to be heated twice. Using same torches and nickel silver brazing alloy, weld cost was reduced 5¢ plus gases and flux; gas consumption was reduced one-third. Diameter of rod used was $\frac{3}{32}$ ". Build-up was unnecessary. Assembly is welded entirely from one side, where formerly it was welded on one side and then turned over. Appearance of new job is excellent.

COST SAVING ITEM—232

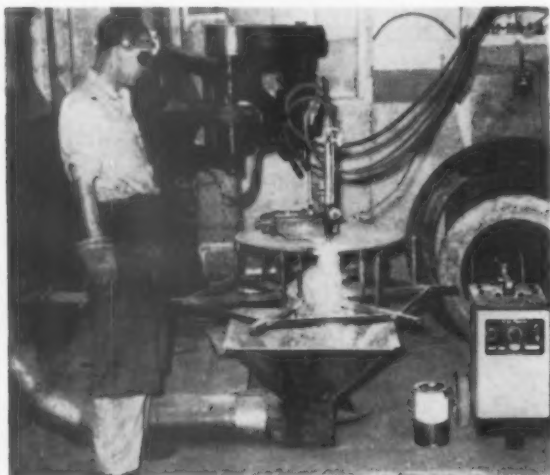


Aluminum Brazing Ups Production 50%

Trouble was experienced with distortion and buckling during fabrication of aluminum drain plug to main unit, at plant of the Larkin Coils Company, Atlanta. Aluminum brazing with aluminum brazing wire and recommended brazing flux, increased production over 50%. Finished welds were excellent, rejects virtually eliminated, and savings effected in gas and filler wire consumption.

COST SAVING ITEM—233

Production Tools and Equipment



Production Time Reduced 79%

Production was slow on shaping stainless steel plate at plant of the American Machine & Metals, Inc., East Moline, Ill., requiring many hours to machine twelve 5-ft. discs from $\frac{1}{4}$ " plate. Adopting the flux injection method of oxyacetylene cutting stainless steel, with the aid of a radiograph and special set-up, the production rate jumped immediately. Manufacturing time for the twelve 5-ft. discs now takes only 8 hours—a reduction of 79% in production time.

COST SAVING ITEM — 234

Drilling Time Reduced 86%

A pressure cooker manufacturer formerly drilled seven $\frac{1}{8}$ " holes in cover lugs, one at a time. By mounting seven small air-operated drills in a fixture, the time cycle was reduced 86%. Savings per hour are placed at \$7.50. The tools paid for themselves in six days.

COST SAVING ITEM — 235



Machine Gas-cutting Ups Production

The Cyclotherm Corporation, Oswego, N. Y., was behind in its production of gusset plates, scrolls, skid legs and other boiler parts. Torch operators were few, and ordinary hand cutting too slow. A machine gas cutting installation equipped with a six-torch set-up with magnetic tracing device was installed. The new method proved much more economical due to the elimination of jig set-ups, and reduced grinding time, along with increased accuracy.

COST SAVING ITEM — 236

Production Tools and Equipment



Tool Cost Reduced 60%

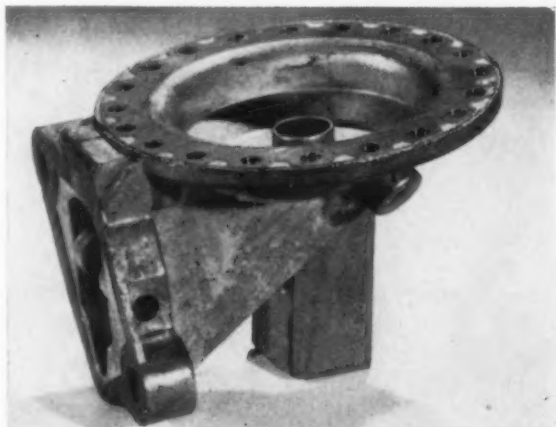
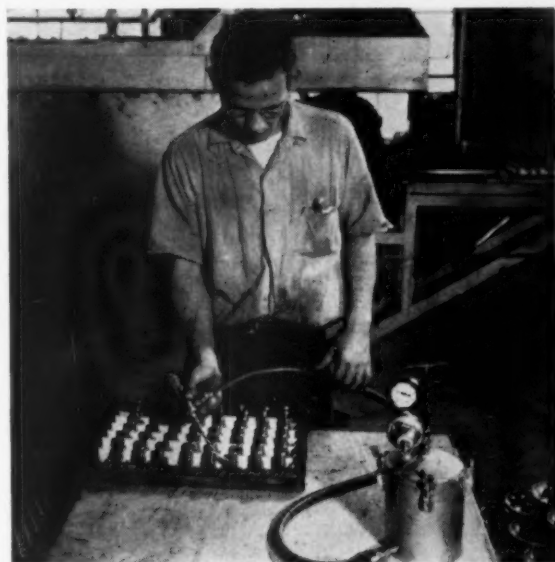
Manufacturer of drier rolls made one complete semi-finish cut on this alloy cast iron drier roll, 5' dia. x 15' long with carbide tool, 1 1/4" dia. insert, before insert was indexed. The job was completed in 96 minutes compared to 240 minutes with HSS tool, and at 60% less tool cost.

COST SAVING ITEM — 237

Copper Brazing Paste Speeds Production 65%

By the use of copper brazing pastes and applicator units for replacing ring of brazing material formerly used, not only has the Huber Metal Processing Company, Milwaukee, speeded up application from 600 to 1,000 pieces an hour, but it is saving \$2.31 1/2 per M on cost of rings previously used. Formerly a 1/2" ring of #26 copper wire was used on parts illustrated. Rings were applied with tweezers. To fabricate rings cost 30¢ per thousand, and since there were 9,000 rings per pound, the cost was \$2.70 a pound for the copper in this form, plus the cost of the copper, making a total of \$3.00. The cost of the paste is 68 1/2¢ a pound. Use of the paste also eliminates need for stock piling different wire sizes.

COST SAVING ITEM — 238

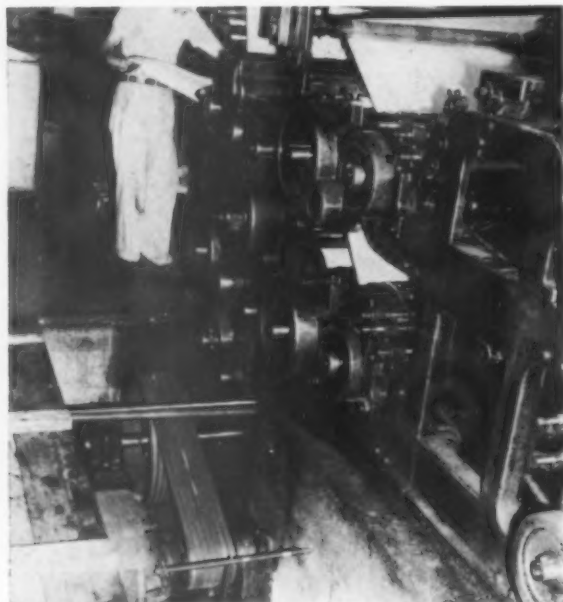


Production Increased 100%

Manufacturer of fuel pumps was using single spindle drill with drill head and tapping attachment for tapping job—tap-ten-index-tap-ten 10-32 holes in die cast diaphragm cover for fuel pump. By installing high speed multiple drilling and tapping machine, production was upped from 160 parts per hour to over 320 parts per hour.

COST SAVING ITEM — 239

Production Tools and Equipment



V-Belt Drives Saves \$525

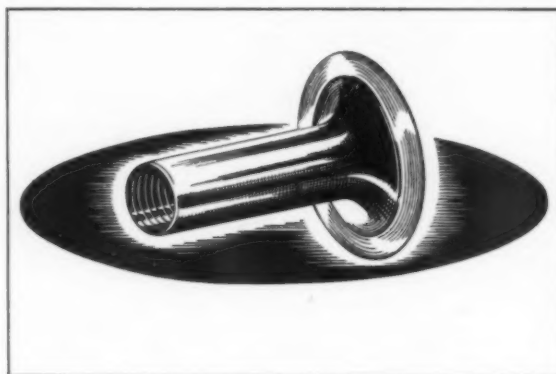
Drive on newspaper press wore out. Cost of new drive was \$750. Superintendent recommended V-belt drive which was installed at cost of \$225. He reports that where three motors were previously employed to start presses smoothly to prevent breakage of paper, only two are now required. Furthermore, printing time has been reduced by 30%.

COST SAVING ITEM—240

Production Increased 40%

Leading special-products manufacturer was tapping 5/16—18 spiral point tap to depth of 3/4" full thread in tough, stringy steel. To average 15,000 holes per tap, many required lapping to size, and all were surface treated. Tap featured by exclusive surface treatment that provides longer wear and proper lubrication was substituted for taps formerly used. Production now consistently runs 21,000 threaded holes per tap—taps being used without modification.

COST SAVING ITEM—241



1,300,000 Run Before Regrinding

This interesting case history tells about a run of 1,300,000 blanks before regrinding, a saving of \$178 per million pieces blanked, and a press utilization of 95.2%. The manufacturer changed to cemented carbide dies for blanking rotor and stator laminations. The records show a regrind improvement of 16.2 to 1. Steel dies averaged 80,000 blanks, and the carbide dies averaged over 1,300,000 per run.

COST SAVING ITEM—242

Production Tools and Equipment



Production Increased 270% Per Tap

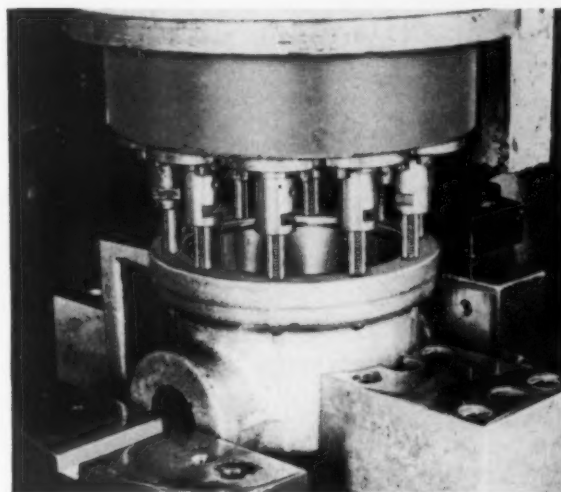
Manufacturer of electrical parts changed to HS steel, commercial ground thread, spiral pointed hand taps, size 5/16"-24 NF flash, chromed plated, for tapping electrical connectors of cold punched steel. The change resulted in increase in production of 270% in acceptable tapped holes, as compared with production by taps formerly used.

COST SAVING ITEM—243

35-40% Lower Tool Cost

Pump manufacturer changed to HS steel commercial ground thread plug hand taps, size 5/16"-18 N. C., for expensive multiple tapping job in Meehanite cast iron hydraulic pump body. The new type taps produced threaded holes of high quality and uniform size, lower tool cost per piece, minimum down time for tapping machine, and 35 to 40% increase in tap life.

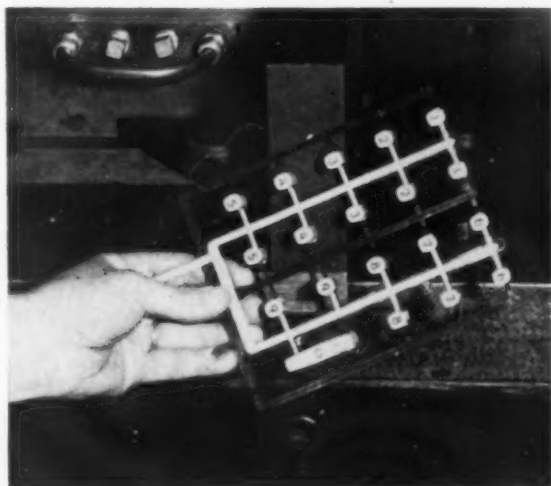
COST SAVING ITEM—244



Two-Color Injection Molding Saves Cost of Machine and Molds in Year

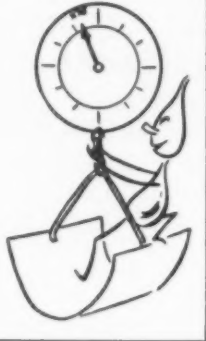
Production savings with new automatic two-color injection molding machine installed by the Friden Calculating Machine Co., Inc., paid for the injection machine and molds in approximately one year. Two contrasting colors are molded in a single operation. The machine will mold key tops, dials, knobs, name plates—practically any item requiring two-color production. New keytops cost 50% less than the old filled-in type and are far superior in quality to those previously produced. Abrasive tests showed that the keys should last at least 50 years before showing any noticeable wear. Saving on keytop production is placed at several thousand dollars.

COST SAVING ITEM—245



Production Tools and Equipment

275 %
**GREATER PRODUCTION
PER BROACH GRIND**



Broach Grind Increased From 2400 to 9000

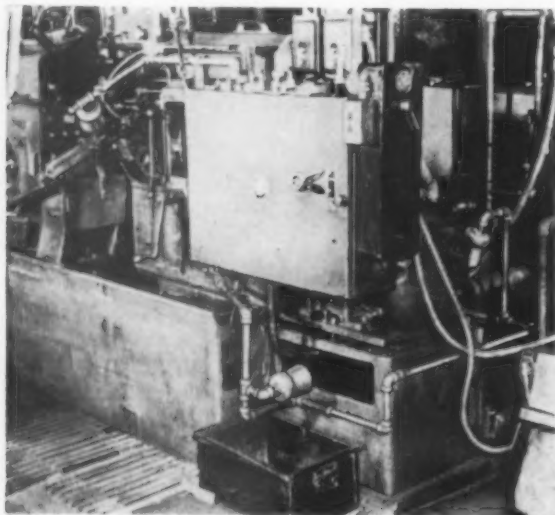
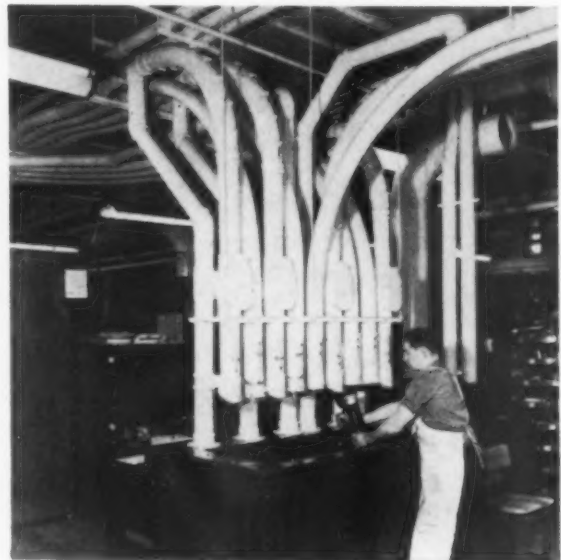
Manufacturer broaching tank track cap on No. 3140 steel forging experienced difficulty with tool and work running hot, and necessity for frequent tool regrinding. Changing over to a special coolant, production was jumped from 2400 to 9000 pieces per broach grind—an increase of 275%.

COST SAVING ITEM—246

Lower Tool Inventory; Messenger Service Eliminated

Pneumatic tube installation from tool crib to various departments in large business machine plant, not only saves time of machine men going to and from crib, and messenger service, but saves considerable time in handling orders for tools, plug gauges, blueprints, drills, files, taps, etc. Inventory on tools and gauges was reduced as they are available upon a minute's notice and delivered in a fraction of the time required for personal pick-up or messenger delivery.

COST SAVING ITEM—247



CO² Fire Extinguishing System on Screw Machine Saves \$800 a Month

Auto manufacturer was making valve stems on automatic screw machines cooled by light oil with low flash point. The result was frequent fires. Foam extinguishers put out the fires, but coolant was ruined, and machines gummed up. Lost machine time ranged from 16 hours to 5 days. Carbon dioxide systems with multi-jet nozzles were installed on each machine. Machines still caught fire once or twice a week, but fires were detected and killed automatically. Carbon dioxide evaporates immediately and does not contaminate coolant nor cling to machine. Production superintendent states each installation saved its cost of \$800 in the first month—a saving that is repeated month in and month out.

COST SAVING ITEM—248

Production Tools and Equipment



Steel Flasks Develop Overall Labor Saving of 57½%

T. & W. Manufacturing Co., nonferrous foundry, Kansas City, Mo., was using wooden flasks for production of fan blade 56" long and 7" wide, in aluminum and bronze. One molder was producing 7 aluminum or 5 bronze castings per day. Fabricated steel flasks were substituted for the wooden flasks. Production was boosted from 7 to 20 blades per day—65% saving on labor in molding; a saving of 50% was achieved in cleaning department. Rejects due to dirty castings were reduced from 5% to less than one half of 1%. Overall labor saving is 57½%. Maintenance costs for flasks marks an alltime low.

COST SAVING ITEM—249

Employee Capacity Increased 31% by Rubber Stamp

The Peter J. Schweitzer Company of Mt. Holly, Pa., by the simple step of replacing four different rubber stamps used in one operation by ten women in one department, by combining the markings of the four stamps into one self-inking stamp using rubber type that can be locked in place, increased the working capacity of each employee by approximately 31%.

COST SAVING ITEM—250



Production Jumped to 480 Units Per Hour at Much Lower Cost

Wabash Manufacturing Co., Chicago had problem producing gas-tight bonds on noxious gas strainers for domestic refrigerators. Torch brazing and induction heating and machine-wound rings were unsatisfactory. Production averaged 60 strainers per man hour at an operation cost of \$3.00. Silver solder notched coil rings solved the problem. Rings do not distort and retain tolerance of plus or minus .001" on OD and ID. Rings hold brazing material in place and bonds are gas-tight. Production with rings was raised to 480 units per hour at an operating cost of 80¢. Rejects were reduced from 10% to .5%. Specific amounts of silver solder saved 25% in material cost.

COST SAVING ITEM—251

Production Tools and Equipment



Uncover \$3500 Worth of Milling Cutters

Milling cutters worth more than \$3,500 were recovered from machines and tool boxes of employees, by central New York casting company incident to installation of a scientific tool crib control system. Company had been making unnecessary purchases of tools to replace those previously issued. Installation of the control resulted in reduced tool inventories, substantial reduction in loss and pilferage of tools, and time taken by employees to draw and return tools.

COST SAVING ITEM—252

Saw Attachment for Hand Power Drills Saves \$55. on One Job

To permit installation of air vents, it was necessary to make 24 openings in floor grating in Philadelphia office building, size of openings 18" x 24". Grating was of $\frac{1}{8}$ " x 1" black iron, joined by bolts and rivets. Maintenance records show that by use of utility saw attachment for electric or air hand drills which converts rotary motion into reciprocating action for sawing, filing, etc., one man was able to do the job in 2 hours, as against 24 hours for hand sawing, making for a saving of \$55.

COST SAVING ITEM—253



Production Increased from 1000 to 7500 per Day

The Charles R. Handley Co., Los Angeles, Calif., manufacturers of record equipment, forms, etc., have materially increased production through the use of resistance welding. One of the outstanding examples of cost-cutting centers around production of one of the binders, in which $\frac{3}{8}$ " posts are fastened to deep drawn tube of 20 gauge cold-rolled steel. Former method slowed production by reason of punching, countersinking and spinning posts in place. This method produced only 1,000 per day. The three-phase welder which has made possible the conversion of many items from heavier metals to light aluminum, was adapted to this job and now assembles 7500 in the same period.

COST SAVING ITEM—254

Obsolete Machine Tools Wasteful

IF the present trend of inadequate replacement of old machine tools is not reversed, by 1955 more than three out of every four machine tools in this country will be at least ten years old, continuing to burden industry with slow production and high costs as compared with faster and lower cost production made possible by tools of recent design.

Any company can become "mechanically bankrupt" and still be "financially solvent" declared L. W. Scott Alter, president and general manager of the American Tool Works Company, at the recent Westinghouse Machine Tool Electrification Forum. He said that though high labor costs have in the past few years created demand for machine tools of modern design, that severe competition from here on will demand a larger replacement program.

It is not generally understood that a machine tool built in 1945 though only five years old, may be obsolete from the standpoint of performance. There are, roughly, three groups of machine tools in use today: (1) Those produced before 1937, which Mr. Alter said may be wasteful in manhours for a given production; (2) those of later design and produced between 1937 and 1946, which may meet requirements in some plants, yet be a definite source of loss in other operations, and (3) postwar tools.

Authorities state that these new machines will produce on an average, 30% more than machines built during the war, and that they have far greater production capacity in most cases than machines built prior to 1930. Consideration must also be given to the role of carbide cutting tools which mark a new era of higher production, less machine down-time, and lower unit costs.

The following pages present brief histories of machine tool installations that have doubled and trebled production, and more. These briefs are symbolic of the overall lower cost potential made possible by machine tools of postwar design.

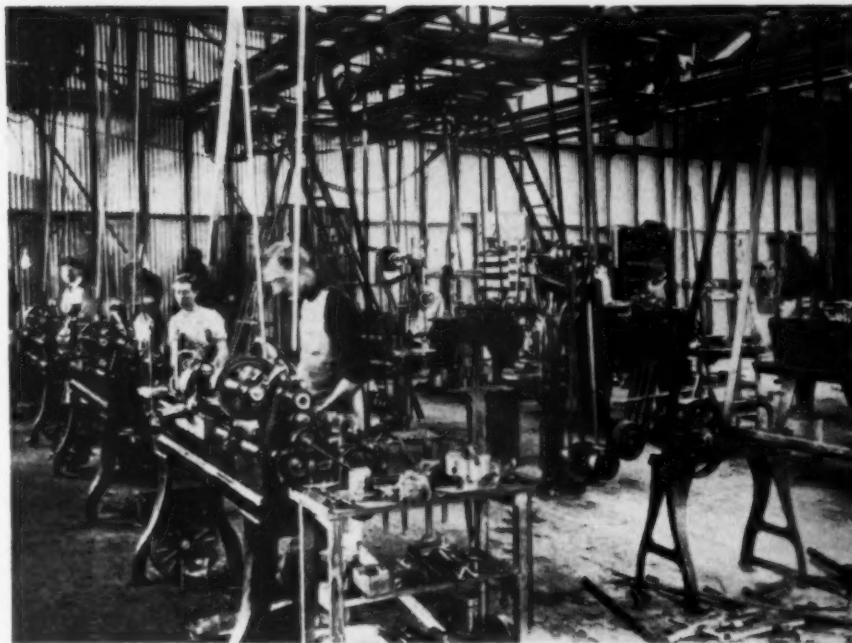


Photo Courtesy of Curtiss-Wright Corporation

Machine tools of modern design average 30% greater production than old machines

Studies reveal cases where new machines have paid for themselves in two to four years

Increasing severity of competition demands replacement of obsolete machines

"A Study in Machine Tool Arithmetic" released by the National Machine Tool Builders Association, dealing with computation of return on invested capital, concerns the purchase of a new machine the cost of which is \$7,055. The machine to be replaced was turning out 120 pieces per hour (960 per day), whereas it was demonstrated that the new one could turn out 200 pieces per hour—1600 per day. On the old machine the labor costs per piece was \$.0125, while on the new machine the cost was \$.0075 per piece. The saving for each 8-hour day totals \$8.00; monthly saving \$173.60; yearly saving \$2,083.00.

In other words, the new machine would save \$2,083.20 per year in direct labor costs, to say nothing of fringe costs, plus the savings due to less floor space, less maintenance, less scrap, and incidentals, which are placed at a minimum of \$150, making a total saving of \$2,233.20.

Arbitrarily estimating the profitable life of the machine as 10 years, and the amount required annually for recovery of capital at \$921.70, the annual net return on the investment is \$1,311.50 or 18.5%.

Studies made by the association include cases where new machines have paid for themselves in two to four years on direct labor savings alone. Not every machine will pay out in so short a period, but even a machine that will pay for itself in eight years' operation is returning 12½% on the money invested in it.

The large savings made possible by today's machine tools attest the importance of studying new developments and their potential value to one's own operations. Likewise, they are important from the standpoint of products and parts purchased from suppliers, for plants so equipped are the source of better quality, better service and better prices.

Machine Tools



Gear Production Increased 50%

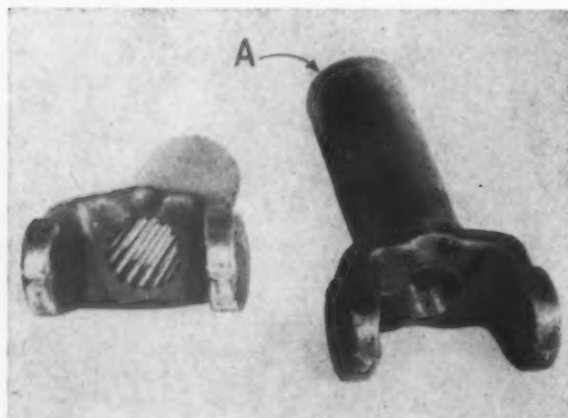
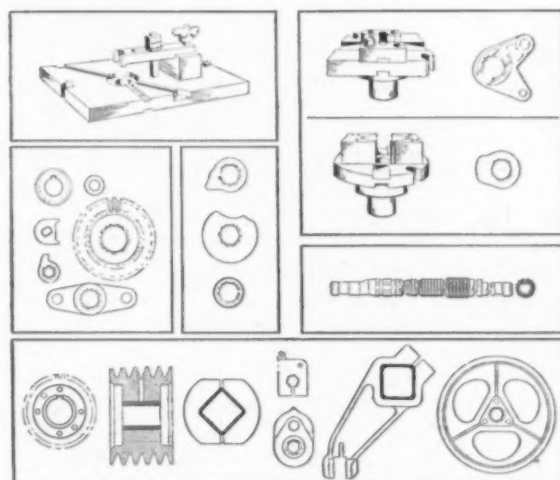
Installation of single spindle gear cutting machine at an automotive transmission plant has increased cast iron transmission clutch gear production 50% per eight-hour shift including down time for tool sharpening. Using no coolant the gear shaper cuts all teeth of one of the 4" dia. 51-tooth, 1½" face width clutches simultaneously—in just 33 seconds. The HSS tools are sharpened after each run of 1600 gears. Former output by hobbing was 368 pieces per eight-hour shift, including an average of an hour a day for tool sharpening.

COST SAVING ITEM — 255

Broaching Machine Produces 59 Different Parts

Broaching, once considered only a mass production process, has been effectively adapted to short runs with high accuracy and low initial tooling cost, by The Warner & Swasey Company, for specialized parts for textile machines. One standard 10-ton machine, 54-inch stroke, is used to produce 59 different parts. In one case 10 similar parts are broached simultaneously, though the total run is relatively short. Illustration shows fixtures, adapters and some of the parts produced.

COST SAVING ITEM — 256



Cut Three Operations to One

Here's an example of how already low manufacturing costs can be reduced still further: Previously three broaching operations were used on the bore to produce the finished knuckle. Now the splined hole is produced in a single pass—and three parts are finished at every cycle of the broaching machine for a still lower cost. Fixture is so designed that clamping is unnecessary, the ears on the knuckle snapping into spring loaded locating blocks. This considerably simplifies loading and unloading. Of major help from the operator's standpoint also, is the automatic handling of all three broaches by the machine. Shank "A" is broached before splining, using dual ram machine broaching two parts at a time on each ram — four parts to a complete machine cycle.

COST SAVING ITEM — 257

Machine Tools



Coupling 14" Drill Press With Automatic Doubles Production

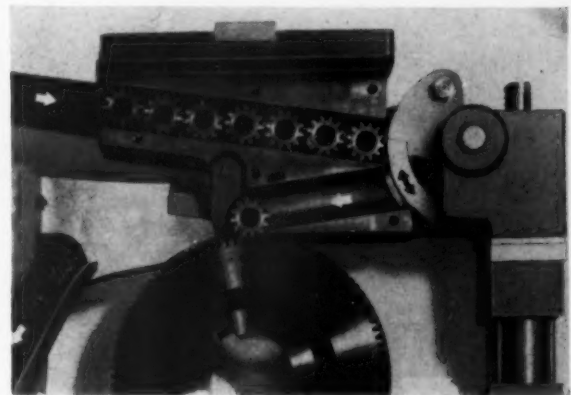
The accompanying illustration represents a high-speed, high production set-up at exceptionally low cost. A 14" drill press cleverly coupled with an automatic drill press, doubled production with only one operator. The automatic unit produced 1,250 pieces per hour. Ordinarily, doubling production would have meant investing in another automatic and employing another operator.

COST SAVING ITEM — 258

Automatic Loaders Boost Gear Machine Production

Gear manufacturer reports that automatic loading device for gear finishing machines, boosts production to as many as 300 gears per hour per machine. In addition, use of the automatic loading device cuts machine idle time to two seconds or less per gear, eliminates the need for mounting gears on arbors, and makes it possible to finish cluster gears without manual handling between machines.

COST SAVING ITEM—259

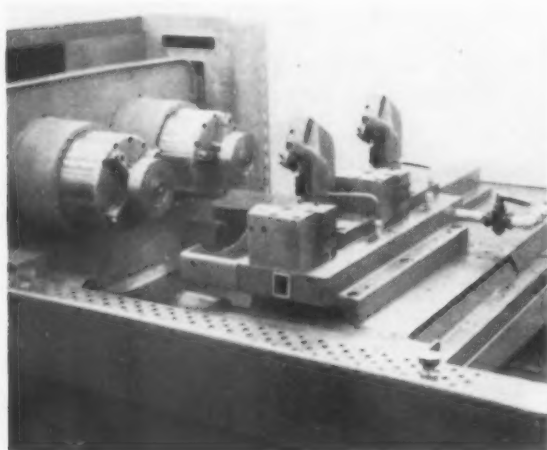


Triple Drill Press Set Up Increased Production 300%

Here three 14" drill presses are mounted on a large press in plant of a Wisconsin Manufacturing Co., and perform operations formerly done on individual machines. Two heads mounted on wheels slide back and forth on rails. One is used for drilling, another for tapping, and the third drills a vertical hole through casting held in the press. Production increased 300%.

COST SAVING ITEM — 260

Machine Tools



Clutch Hub Production Doubled

Automotive manufacturer has doubled previous production of clutch hubs on new boring machine with multiple boring operation. Previously parts were processed by two machines. New machine does the job in a single operation. Fixture and tooling equipment consist of two air-operated diaphragm chucks on each boring head while a cross slide with tool block setup is mounted on the machine table. Work is mounted on a splined arbor which is held in the diaphragm chucks while the O.D. is turned and chamfered and both faces are generated.

COST SAVING ITEM—261

Grinding Output Increased From 200 to 540 Parts Per Hour

Grinder newly installed in the foundry of American Wheelabrator & Equipment Corp., Mishawaka, Ind., increased grinding capacity from 200 to 800 parts per hour. The new tool is a double spindle wet grinder. Before installation of the grinder blades of centrifugal abrasive blasting machine were ground individually at approximate rate of 200 per hour. Now they are ground at the rate of 540 blades per hour, both ends of the blade in a single operation.

COST SAVING ITEM—262



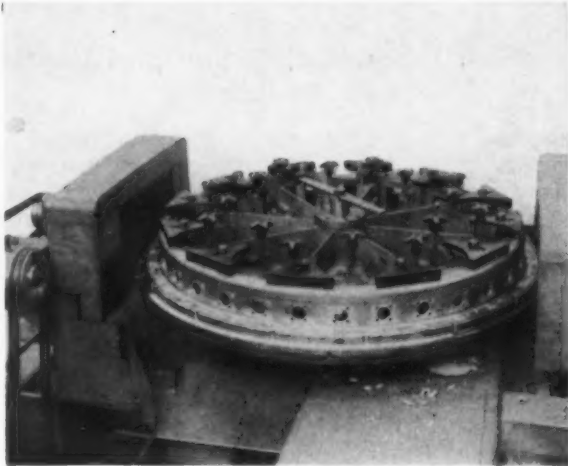
Band Saw Saves \$1.00 Per Hour

Purchase of band saw for cutting segregate parts for completing fabrication of trunk line fittings has saved approximately two-thirds of original time, reports the purchasing agent of a Midwestern furnace company. Originally the die method was used, cutting one part at a time. With the saw, as high as 25 parts can be cut at a time. Time saved is placed at \$100 per hour per fitting man. Often as high as four men work on this particular job, spending many weeks on a 48-hour basis. Thus the savings would run into thousands of dollars annually.

COST SAVING ITEM—263



Machine Tools



Produces Parts Six Times Faster

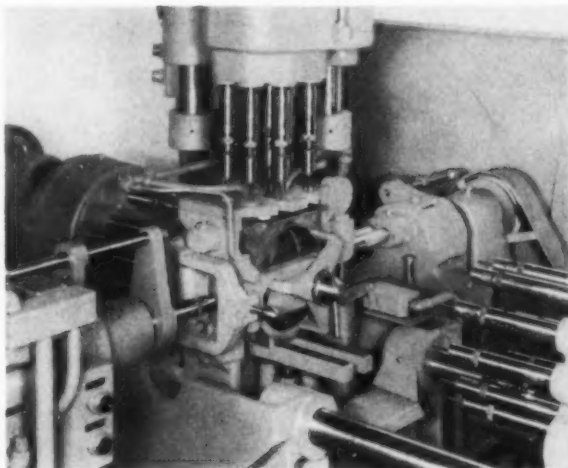
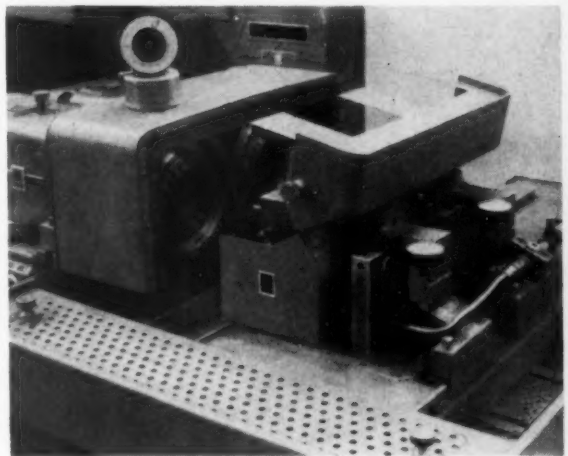
Drill, ream, bore, mill chamfer and spot face—that's the kind of a job this new machine is doing on a circular part for a large manufacturer. Moreover, the job is being done some six times faster than by previous older equipment. The machine cycles are divided into three distinct operations.

COST SAVING ITEM—264

Automatic Cycle Ups Output 100%

Smoother, faster operation plus automatic cycling, have enabled a manufacturer of motor components to double his previous production on the same type of part on new machine tooled for finish boring the I.D.'s of rotor assemblies. This is a two-station setup with double diaphragm chuck with levers. Tooling is carried on a double dial boring bar arrangement with provision for retraction of tools to eliminate drag line in the bore.

COST SAVING ITEM—265



Five Times Faster Than Former Method

The Sprague Meter Company of Bridgeport, Conn., has effected a substantial reduction in costs of drilling and tapping the center castings of its Model 1A meters by the use of two multiple head special purpose machines. Method formerly used required 7 hours to drill and tap 100 center castings. On the new machines, 100 castings are drilled and tapped in only 1.33 hours—a saving of 5.67 hours per 100 pieces. In addition, 50% of the floor space formerly required is available for other work.

COST SAVING ITEM—266

Machine Tools



Production Increased, Labor and Power Costs Reduced

Illustration shows parts that are being produced at new high levels of efficiency in spite of short runs that average only 550 pieces per lot, by Electrol, Inc., Kingston, N. Y. Machine used is camless 5-spindle automatic bar machine which is doing the work of seven former machines. With new machine production increased 5 to 10 times; labor cost was reduced 93%; capital investment reduced 66%; power cost reduced 71%; and floor space reduced 70%.

COST SAVING ITEM — 267

Production Seven to Eight Times Greater

Production of parts by seven five-spindle automatic bar machines in plant of the Colson Corporation, Elyria, Ohio, is now seven or eight times greater than with machine tools formerly used. The setup time is less than half that previously required with the other equipment. Average lots run 500 to 10,000 pieces. Cam changes are eliminated.

COST SAVING ITEM — 268



Reduce Milling Time 22% Per Piece

Milling compound angle slots in a 24" diameter cutter body by conventional methods required 33 minutes. With mono-lever control and a plain cycle setup, Kearney & Trecker Corporation was able to reduce the time to less than 26 minutes, a saving of 22% per piece. The operation requires a special setup whereby the combination of a sine bar fixture and a hand indexed rotary table is employed to locate the workpiece properly, and position it for each slotting cut. An automatic cycle is set up to move in and out of the cut.

COST SAVING ITEM — 269

New Electrical Equipment Offers Means for Faster Production and Lower Costs

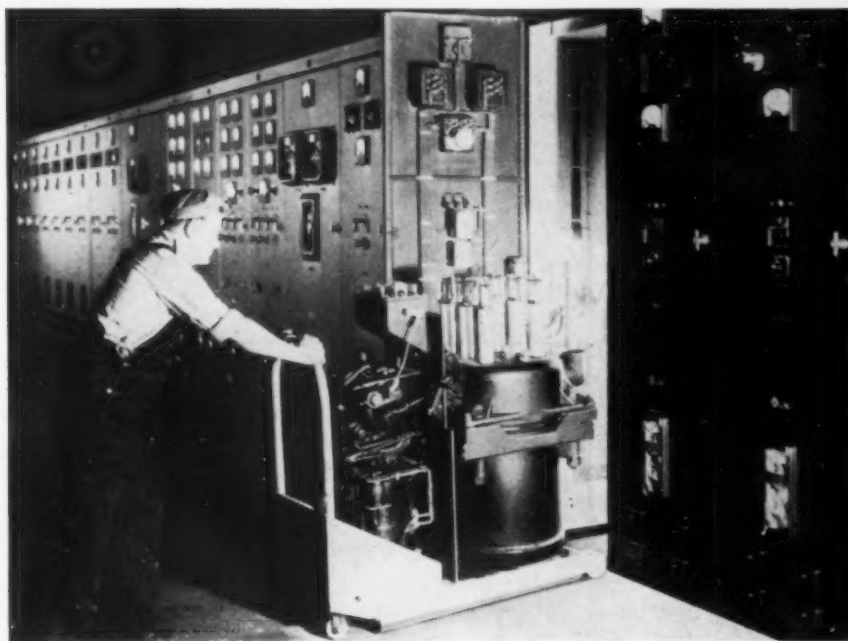
IT is the opinion of leaders in the electrical field that in spite of the fact that American industry is 90 to 95% electrified, the industry is less than 50% electrified in the terms of jobs that electricity can do more efficiently and economically.

Also, there are thousands of manufacturing plants now electrically operated that would profit immeasurably by replacing outmoded types of outdoor substations, pipe mounted switchgear, low voltage bus bars, distribution panels, controls and old style motors, with the newer and more efficient equipment now available. This also applies to accessory units and supplies, and various processes such as welding, dielectric and induction heating, lighting, and electronic controls. There is hardly a division of business—materials handling — production — shipping — administration and even sales—that is not dependent upon electricity in large degree, looking to greater efficiency and lower costs.

Technological evolution has brought to both production and administration, marvelous electronic equipment which literally has the ability to see, hear, feel, smell, taste, and "think." New electronic instruments are constantly being introduced that duplicate and usually excel the human senses.

From the office to the production line the science of electronics is launching what Wm. C. White, General Electric's Laboratory scientist, terms a technological revolution equivalent in impact to the industrial revolution of the past century. Routine work is being taken over by electronic machines, eliminating the human factor where performance consists of repetitious operations that are mere reflexes without thought.

The following pages cite numerous case histories telling how modern equipment and accessories have increased production, reduced costs,



Industry is less than 50% electrified in terms of jobs electricity can do better

From the main office to production and shipping industry is dependent upon electricity

The science of electronics is launching a technological revolution affecting all production

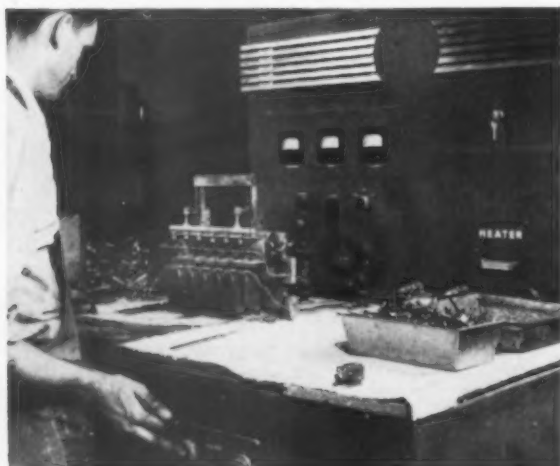
and made substantial money savings possible. Similar money-making investments involving electrified equipment feature many of the more than 200 case-history presentations in this issue.

Today the electrical industry offers for faster and better low cost production, compact unit substations, motor control centers, air-cooled lighting transformers, utility type bus ducts and many other types of equipment. Among the important developments are rotating speed regulators which have found place in a wide range of applications from blooming mills to machine tools; new motors in decreased size for a given capacity, and with sealed-in

lubrication that offers years of service-free maintenance; electronic speed controls which are finding extensive use on machine tools and in various industrial operations; single power, high voltage net work systems feeding unit substations; induction and dielectric heating, and infrared drying.

The foregoing is but representative of the newer developments in the electrical field. Announcements of new equipment, accessories and supplies are being made almost daily, ranging from motors and controls to fuses and terminals, all of which have a place in faster production, improved quality, lower maintenance, and lower end costs.

Electrical



Induction Heater Saves \$36. Per Day

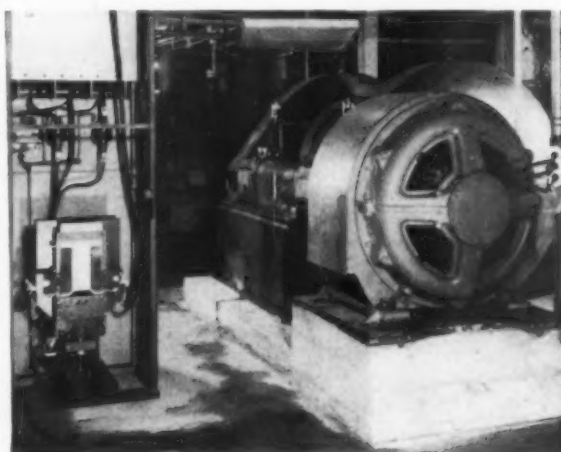
Electronic induction heater used by the Hunter Spring Company of Lansdale, Pa., to braze beater-blade assemblies for portable mixers has reduced production costs, improved the product and practically eliminated rejects. The money savings approximate \$36.00 per day. The completely brazed assembly is stronger than riveted ones, and the number of components has been reduced from six to four. Also the unit offers users the advantage of being easier to clean because there are no crevices where food can collect, and center rod is eliminated.

COST SAVING ITEM—270

Air Break Switches Save \$1000 Per Unit Per Year

The A. O. Smith Corporation of Milwaukee, Wis., faced high maintenance cost with oil circuit breakers, the arcing tips and contact plates of which lasted for only 21 days under an unusually severe duty cycle. New air break switches proved to be the answer to the problem—no contact wear, no oil break down, reduced fire hazard, cleaner areas around the motor starting panels and, most important, a saving of \$1,000. per unit per year, with the assurance of continuous operation of the equipment.

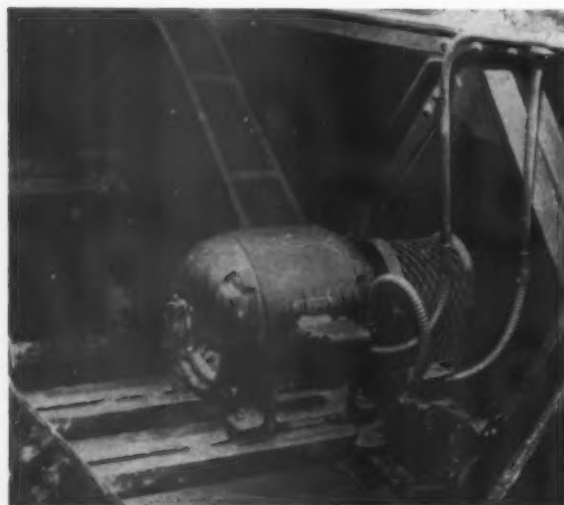
COST SAVING ITEM—271



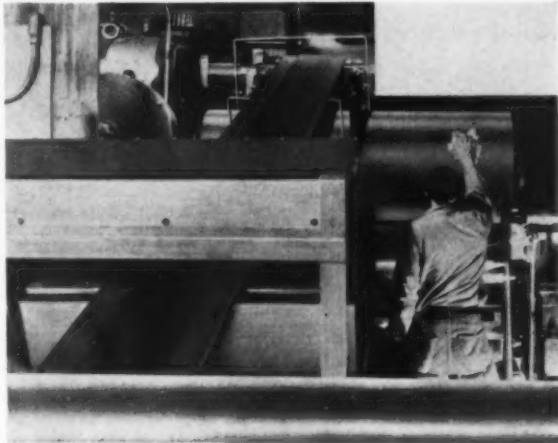
A "Five-Star" Saving

It cost Standard Gypsum Company of California about \$700 per hour every time heavy overloads caused failure of 25 hp motor driving screw conveyors in the mixing house. Such expensive motor failures occurred every 30 to 60 days until a silicone insulated motor was installed in December, 1948. This motor is only about one-half the size and weight of the motor formerly used, yet it is performing the same work after eight months without failure, giving more power per pound, greater reliability, reduced maintenance costs and increased production.

COST SAVING ITEM—272



Electrical



Save \$2,000 in First 30 Minutes of Operation

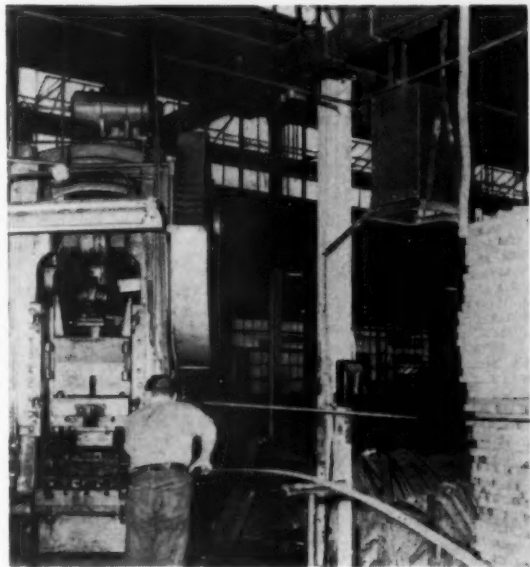
Tramp metal imbedded in vinyl plastic material prior to calendering at plant at Respro, Inc., Cranston, R. I. was either non-magnetic or too deeply imbedded to be removed by a magnetic separator. An electronic metal detector was installed which triggers an alarm and stops the conveyor belt so that contaminated plastic may be removed from the belt before it reaches the calender. Some \$2,000 was saved during the first 30 minutes of operation through detection of foreign matter, avoiding serious damage to the rolls. Savings in money, material and time led to a rule that all plastic material must pass through the detector before calendering.

COST SAVING ITEM—273

Capacitors Save \$2700 Annually

Installation of two 90 kvar and two 30 kvar capacitors by the Empire Plow Company, Cleveland, Ohio, effected an immediate increase of more than 30% in the power factor. Under existing utility rate structure, it is estimated that the installation paid for itself in eight months. Total cost of installation, including capacitor, switches and installation charges, was \$1907. Annual savings on power costs are placed at \$2700 because of the power factor increase.

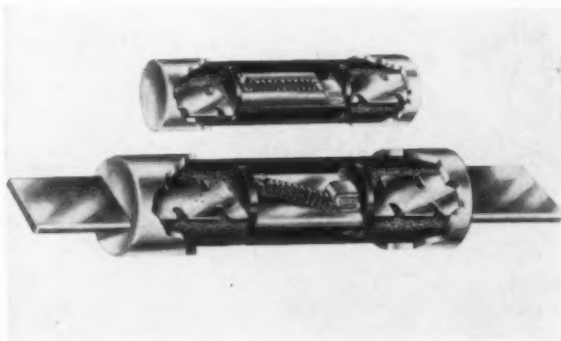
COST SAVING ITEM—274



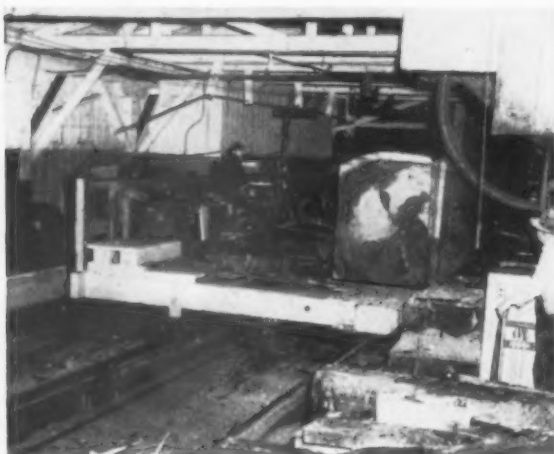
Dual-Element Fuses Save \$5,000 Annually

The Capital Transit Co., Washington, experienced difficulty securing adequate protection for solenoids on track operated switches, with 10 ampere fuses. Trying 2 ampere dual-element fuses it was found that their time-lag permitted them to hold the initial current surge yet they would open if the solenoid circuit failed to operate properly. All solenoids are now protected with the dual-element fuses, and solenoid failures have been reduced about 90%. The saving is placed at \$5,000 a year when all factors involved in a failure are considered. Company engineer states also that better protection was obtained on "KL" relay circuits by replacing 300 and 400 ampere fuses with 200 ampere dual element fuses.

COST SAVING ITEM—275



Electrical



Lumber Production Increased 7½-10% Per Day

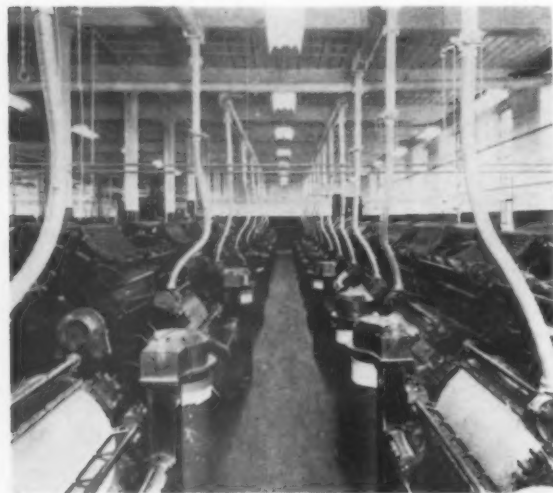
Replacement of "steam shotgun" type sawmill carriage drive at plant of a California lumber company, with an electric drive, has resulted in increased production of 7½ to 10% more board feet per day. The mill finds it more economical to purchase small amounts of electric power than to provide large steam volume for "shotguns". The new drive package consists of motor-generator set to convert a-c electricity to d-c, a sturdy mill-type drive motor, and a control system incorporating an amplidyne which translates sawyers' signals into voltage that turns the carriage motor in the right direction and at the right speed for the desired cut.

COST SAVING ITEM — 276

Motor Service Life Increased 200%

Open type 2 hp motors used to scarf cut tread stock at plant of Armstrong Rubber Manufacturing Co., Des Moines, Iowa, reverse 12 times per minute and operate in a mist of water used to lubricate the cutters. Life of Class A motors in this service ranged from four days to a few weeks. Two years ago motors were rewound with silicone (class H) insulation. They have already given as much as 200 times the service life of Class A motors.

COST SAVING ITEM — 277



Individual Drives Eliminate Shutdowns

Elimination of shaft maintenance, belt replacements, and expensive total shutdowns because of motor failures on main line shafts, is the result of converting 249 flat-top card machines from group drive to individual drive, according to officials of the Exposition Cotton Mills, Atlanta, Ga. Over half of the card machines are driven by 1½-hp totally enclosed, waste-packed-bearing, textile mill motors. The connection between motor and carding drum is an encased silent chain drive. Installation of individual drives has also resulted in improved operating and working conditions. The total cost of individual drives will be liquidated in 10 to 12 years through the savings in shaft maintenance and belt replacements alone, according to the superintendent.

COST SAVING ITEM — 278

Electrical



Forming Time Cut to Four Minutes

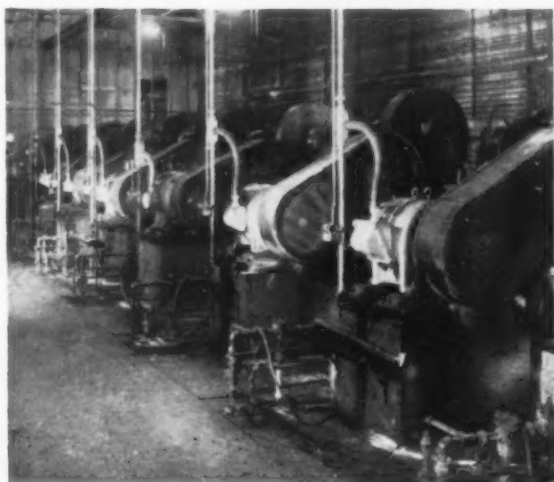
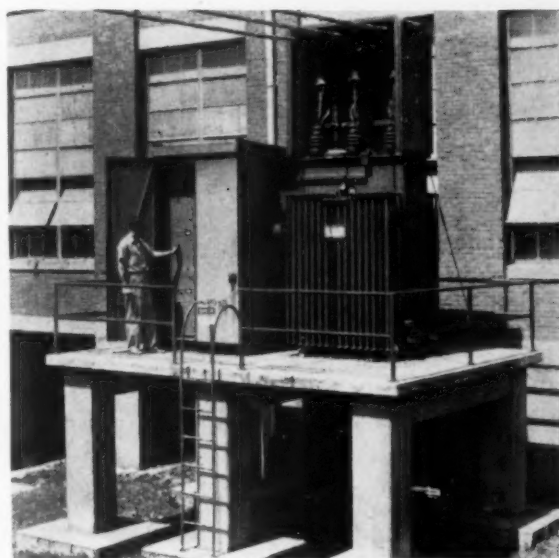
The Los Angeles Period Furniture Company formerly made curved plywood panels seven at a time, clamped overnight between male and female forms and six intermediate cauls. These form-and-caul sets cost \$1,200 to \$4,200 each and several sets were required to handle production. A new high frequency generator uses form sets costing \$300 to \$400, and cut forming time to four minutes per panel after the layup is made. Best competitive price obtainable was 42% above cost at plant.

COST SAVING ITEM — 279

Outdoor Substations Increase Production

An increase in production, a 50% reduction in line losses, and a saving of 75% in installation costs have resulted from the installation of two 1000-kva, outdoor type, load-center substations, at a large Southern textile mill. Increased production has come about through elimination of shutdowns for repairs and providing the mill with dependable and continuous service. Line losses have been reduced and constant accurate voltage regulation obtained through reduction in feeder lengths from 800 and 1000 ft., to 200 and 250 ft.

COST SAVING ITEM — 280



Save \$17,415 With Silicone Insulation

Engineers increased the pumping capacity in a production unit of the Dow Chemical Company by having 12 of their old 50 and 60 hp motors rewound with silicone (class H) insulation. New 75 hp Class A motors would have cost \$24,840 at list price. Rewinding with the silicone (class H) insulation cost only \$7,425. Thus at a saving of \$17,415, the engineers provided a line of Class H motors that have much greater resistance to moisture, oil and corrosive atmospheres, plus greater overload protection.

COST SAVING ITEM — 281

Electrical



Rectifier Reduces Power Cost 10¢ Per Ton of Coal

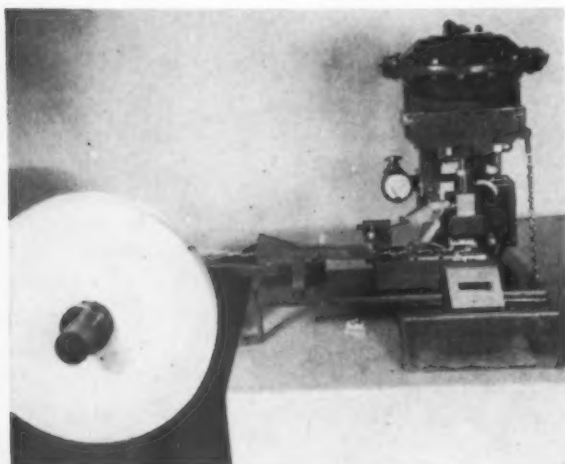
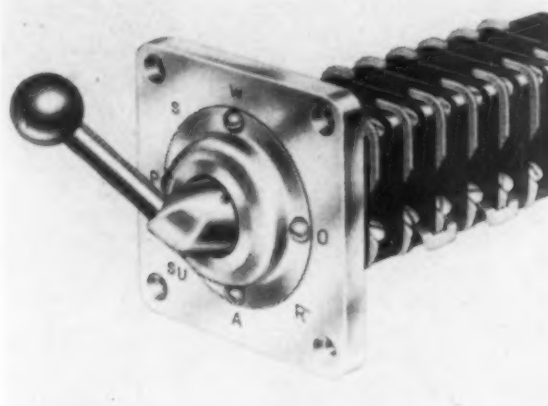
Installed in 1946 to replace obsolete steam-electric generating equipment, 300-kw, 275-volt, stationary-type rectifier equipment, operating on power purchased from a local utility, has reduced the cost of power, per ton of coal, by more than ten cents at a Pennsylvania mining company. According to engineers of the Vinton Coal & Coke Co., Vintondale, Pa., former power cost of 37½ cents per ton was reduced by means of the rectifier to about 23 cents per ton in two years. Maintenance costs are also reduced, for the rectifier requires only occasional cleaning and inspection.

COST SAVING ITEM—282

Switch Controls Increase Production 20%

Production is estimated to be increased 20% by installation of push-pull selector switches on ball race grinder by the New Departure Co., Bristol, Conn. Two switches and three starters give complete control, otherwise unobtainable with less than 10 push buttons and 7 starters.

COST SAVING ITEM—283



Terminal Attaching Machine Saves \$32,025 Annually

New England electrical manufacturer saved \$32,025 annually by the use of self-soldering terminals and attaching machine therefor. Under method previously used, cost for material was 48¢ per hundred, preparation of wire, attaching terminals and overhead \$1.34 per hundred, total \$1.82. Under new method the cost of material is \$.626 per hundred, preparation of wire, attaching terminals and overhead 34¢ per hundred, total \$.966 per hundred. Saving per hundred \$.854; saving on 75,000 pieces per week \$640.50; annual saving, 50 active weeks, \$32,025.

COST SAVING ITEM—284

New Materials

Source of Improved Product Performance and Lower Costs



PURCHASING agents and their buyers are capitalizing upon materials know-how and know-what, involving use values, production values, and the many methods of production and fabrication, for profitable buying from the standpoint of end use and over-all costs.

Though the majority of engineering materials and their uses are well established, technology is ever announcing new materials, new alloys and new methods of production and fabrication. Product improvement and competition demand that these be thoroughly studied as to their cost saving potential and product improvement value.

Metallurgy, for instance, has in the past few years introduced improved steels and numerous new alloys such as the free machining steels, high temperature steels, stainless alloys, ductile cast iron, aluminum alloys, improved copper base alloys and magnesium casting alloys. These have been created to meet the high tempo of industrial demand for materials that assure improved use performance and lower costs.

Typical among such announcements is one concerning an alloy composed of zinc and small quantities of copper and beryllium, which is said to have approximately the same strength and electrical characteristics as brass. Another announcement was about the little known

metal gallium which will melt when held in the hand, solidify at 85 deg. F., and has a boiling point of 3500 degrees. The price is \$1,300 a pound.

A new material of more direct interest is a super-alloy cast steel for use in blazing heat or in sub-zero temperatures closely approximating the theoretical absolute zero. Among other things, it is now being used for the storage of liquid oxygen at temperatures near 298 degrees below zero, and, paradoxically, in turbo-supercharger parts calling for resistance to unusually high operating temperatures. Again, new processes of metal casting involving the use of powdered refractory materials were described in a recent report which also mentioned new foundry techniques which enabled a 40% reduction in usable metal poured.

Among other engineering ma-

terials that are the subject of constant research, are plastics, synthetic rubber, natural rubber, glass, wood and synthetic crystals. At present there are 25 different base plastic materials. The utilization of a plastic demands careful study from the standpoint of the end use of product to be made therefrom.

Of extreme importance to purchasing for profit, is an understanding of the many methods of production and fabrication, and the equipment and tools available therefor. For instance, the buyer who is familiar with the twenty common methods for the production of small parts, and the respective advantages and disadvantages of these methods, is in strategic position to do the best buying job.

The accompanying case histories cite numerous substantial savings resulting from studies involving materials and production processes.

Standard engineering materials are subject of constant research to improve use values
Knowledge of technological developments essential from standpoint of price and production costs
Buyers versed in materials and production methods are best qualified for effective buying

Materials Components



Metal Study Brings \$10,000 Annual Saving

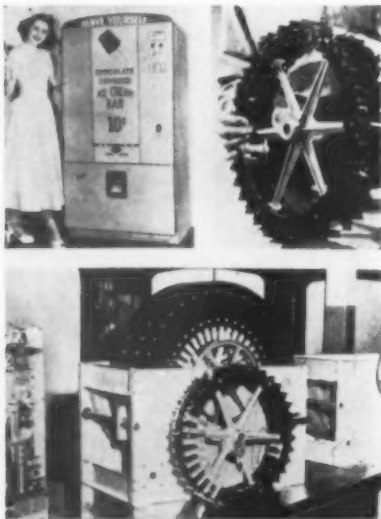
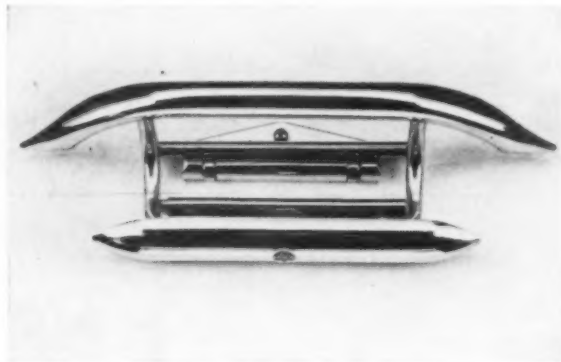
A manufacturer of quality coffee pots was annealing the copper used in his product five times which calls for accurately controlled heat and skilled labor. In an attempt to reduce costs, his metallurgists worked with the supplier's technical advisory service, and it was found that by using copper strip in a certain temper, four anneals could be eliminated. Savings accomplished are now at the rate of \$10,000 a year. Additional savings have been achieved by simplified handling in the factory and in finishing operations.

COST SAVING ITEM — 285

Save 30¢ Per Latch Set

Latch assembly on deep freeze cabinet was formerly made of steel. Covert Manufacturing Co., Troy, N. Y. switched to brass, though cost of brass in the finished parts was higher. Fabricating and processing costs were the same. However, cost of buffing the 70-odd sq. in. of exposed area, before plating, was cut in half, and this plus elimination of rejects effected a net saving of 30¢ per set over the extra cost of the metal. Handle is 12" long overall, and formed from brass tube $\frac{3}{4}$ " O.D. x .035" wall; hood .049" gage, and latch .087" gage, are formed from brass strip; rollers are turned from $\frac{1}{2}$ " diameter brass rod.

COST SAVING ITEM — 286



Save \$313 on Each Machine

Plastics instead of metal were specified for vital parts of new vending machine made by Eastern Engineering and Sales, Inc., and Dextrale Hosiery Mills. Dispenser units each cost \$76. less than comparable unit of die-cast metal, saving \$304 on each vending machine. Use of eight phenolic shaft bushings costing six cents each instead of soft metal bushings which cost \$1.20 each, saved an additional \$9.12 per machine.

COST SAVING ITEM — 287

Materials Components



Magnesium Core Boxes Cheaper to Make

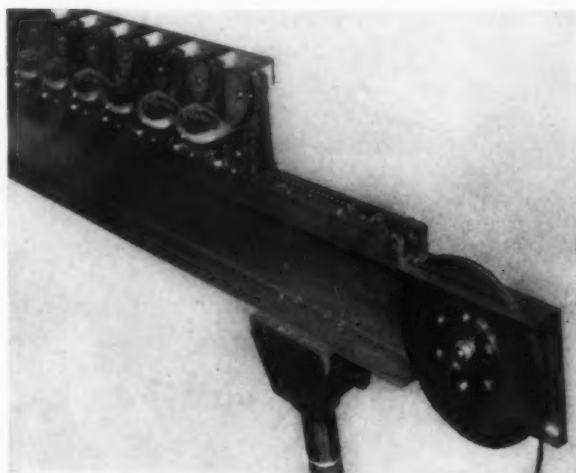
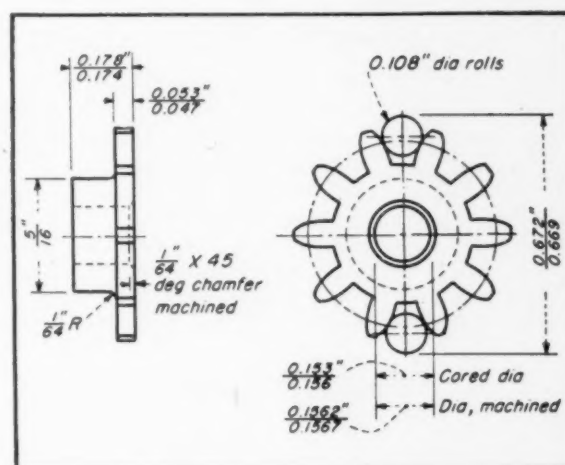
Large automotive foundry, faced with rising costs and large labor turnover in core room, made study of core boxes used. On the basis of tests, magnesium core boxes were adopted. Ease of handling has resulted in greater production with reduction in worker fatigue. The magnesium core boxes are cheaper to make due to significant saving in machining cost, and core box serviceability has been improved. The company states that the new boxes are satisfactorily resistant to erosion and wear from sand.

COST SAVING ITEM — 288

Business Machine Gear Cost Reduced 50%

Manufacturer of business machines made gear of steel bar stock, requiring 14 operations. Turning to powdered metal, gear was made of 80/20 brass leaded powder. The only machining required is to finish ream and chamfer. Total cost saving of 50% features the powdered metal production.

COST SAVING ITEM — 289



Fifty Percent Increase in Loom Speed

Manufacturer of looms knew that reduction in weight of textile lay beams would increase production and decrease costs. Engineers designed lay beam of magnesium. An extruded 5" channel 21½ ft. long carries the shuttle blocks and shuttles. Results: Weight of lay beam itself is reduced by 65%, and entire lay beam assembly which weighed 525 pounds in wood, is reduced to 290 pounds; and, this weight saving results in a 50% increase in loom speed. The increased production is obtained at lower costs since the magnesium beam requires no more power at high speed, than the old type beam at lower speeds.

COST SAVING ITEM — 290

Materials Components



No Machining Required

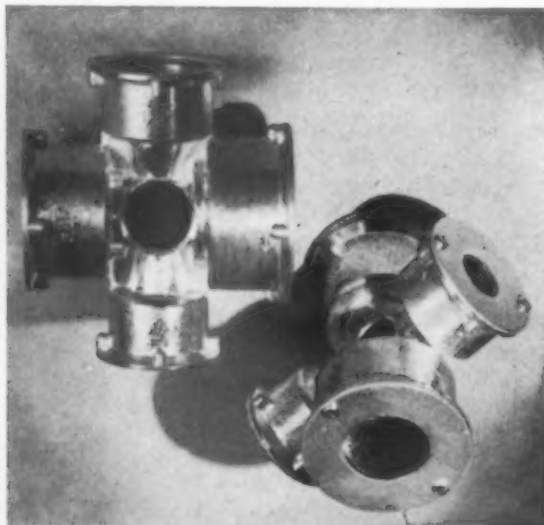
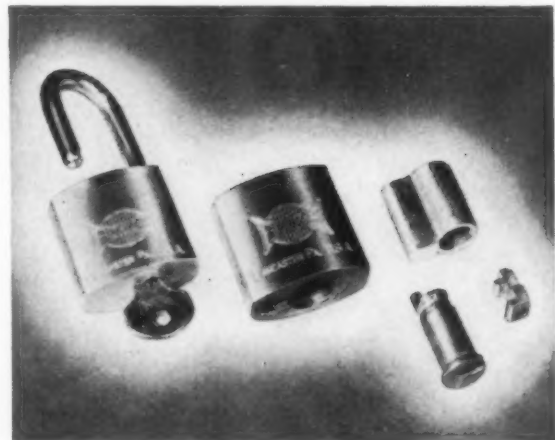
This pinion gear was designed for powder metallurgy production. It is used on General Instrument record changers, and serves as drive gear during record change cycle. It would be costly to machine, but because of the accuracy which can be achieved in powder metallurgy, no machining operations are required. Being made of 80% copper, 20% zinc brass, no corrosion protection is necessary, and because of controlled porosity and oil impregnation, no auxiliary bearing is necessary.

COST SAVING ITEM—291

Machining Operations Reduced

Four parts of new Reese padlock are made from brass powder, the parts being designed specifically for production by this process. Major advantages realized are in the greatly reduced machining operations. The only machining performed on body of lock prior to assembly is the drilling of the shackle holes. Actual piece-cost savings in this case were only one of the advantages. The tooling required to process the incoming pressed powder parts into finished locks cost approximately $\frac{1}{4}$ as much as tooling of parts produced by other methods.

COST SAVING ITEM—292

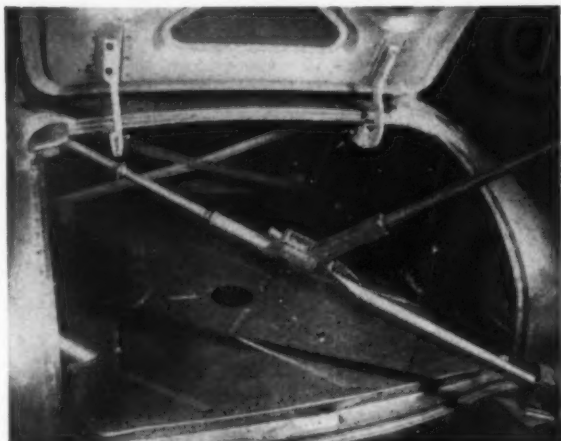


Zinc Die Casting Solves Production Problem

The tubing brush illustrated is good example of how, by good design and intelligent materials specification, a fairly complex part can be simply and inexpensively made. The tool consists of four wire brushes of varying sizes so designed that by inserting copper tubing of proper size and twisting the tube, ends are cleaned for soldering. The holder for the brushes is a one-piece zinc die casting. It is emphasized that by no other method of fabrication could such a part be produced at comparable cost. The tool does not have to be finished as zinc is highly corrosion resistant.

COST SAVING ITEM—293

Materials Components



Big Savings on Auto Door Jack

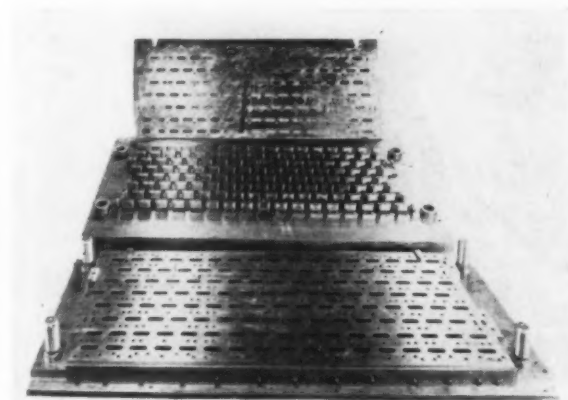
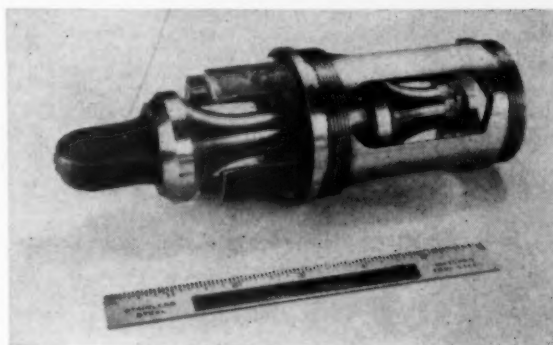
Automobile manufacturer was using jack on body assembly line made of SAE 6145 and oil-hardening tool steel, $1\frac{1}{8}$ " round, to adjust openings for doors and trunk compartments. Strain on tool resulted in broken gear teeth on rack. Out of 12 racks in use, 3 had to be replaced every month. Cost of labor, machining, and overhead was estimated at \$6.25 per hour. Manufacturer purchased 1" round centerless ground bars (instead of $1\frac{1}{8}$ " hot rolled) saving 7.09 lbs. on each 10 ft. length used, and eliminating machining and grinding operations. A total of $10\frac{1}{2}$ hours was saved per rack, or \$65.63, the total saving running to \$196.89 per month. In addition, breakage was eliminated.

COST SAVING ITEM—294

Cost of Finished Parts Cut 50%

This 3" stream flow-type plunger and cage is part of a valve used to control flow of fluids under pressure. Manufacturer was producing the part from a stainless casting. In an effort to reduce overall manufacturing costs, he changed to free-machining bars. This steel (heat treated in plant to 300 Brinell) cut scrap losses 25%, boosted production 10%, and cut material costs of finished parts by 50%.

COST SAVING ITEM—295



Save \$4,000 With New Die

This die pierces straw racks for combines from 20 and 24 gauge galvanized steel on a double crank version press. Normal annual production is about 50,000 racks. Manufacturer figured that design could be improved to increase production. Supplier recommended a new die steel because of its good wearing qualities. New die pierces 8 rows at a time, involving 133 holes $\frac{3}{4}$ " x $2\frac{3}{8}$ ", and 12 holes $\frac{3}{8}$ " x 1", as against original process that pierced only 4 holes at a time. 100 racks are now produced in an hour, compared with former production of 100 pieces in 8 to 9 hours. The saving is placed at 8¢ per rack. Thus at 50,000 pieces per year, the saving is \$4000.00. Where old die had to be reground every two days, the new die has to be reground only once a week.

COST SAVING ITEM—296

Materials Components



Projector Assembly Costs Cut 45%

Comparing fastening costs before setting up assembly operations on projector, the G-M Laboratories, Chicago, Ill., found that machine screw fastenings would cost almost twice as much as the use of self-tapping screws in untapped holes.

COST SAVING ITEM — 297

Self-Tapping Screws Effect 50% Saving

The Lewyt Corp., Brooklyn, N. Y., questioned fastening used in their multi-purpose vacuum cleaner, and found that they could use self-tapping screws and make assembly savings of 50%. By the use of 12 of these screws to fasten sheet metal fan housing, sheet metal coverlock, sheet metal nozzle plate, and die cast cover plate of brush nozzle, the tapping of 12 holes per unit was eliminated.

COST SAVING ITEM — 298

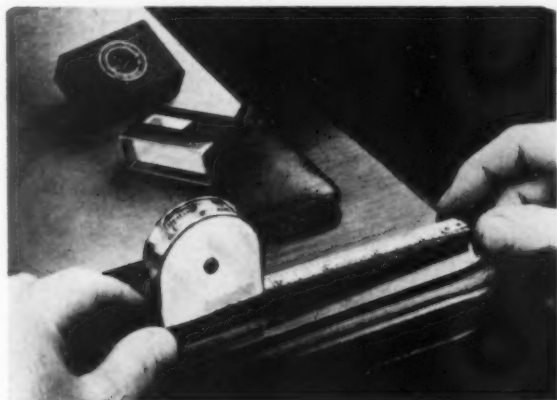


50% to 70% Saving on Plastic Assembly

After conducting exhaustive tests, the Refresh-Aire Corp., New York, N. Y., selected self-tapping screws to fasten the light and tube sockets of their Oxonizer to the plastic chassis. The self-tapping screws were used to fasten metal grill to the urea formaldehyde cabinet, and to fasten the back panel to the cabinet. The elimination of tapping and the use of metal inserts in plastic effected savings of 50% to 70%.

COST SAVING ITEM — 299

Materials Components



Manufactured Costs Reduced 42.7%

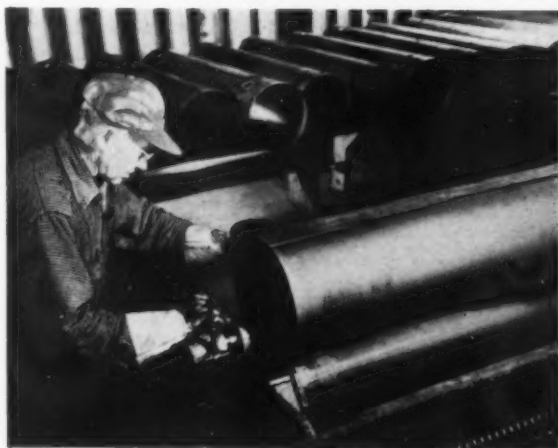
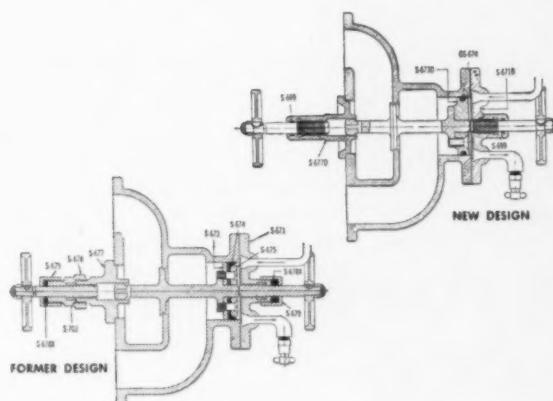
Case of scribe rule made by the Dart Mfg. Co., Mason, Mich., was of chrome-plated cold-rolled steel. By the time it was prepared for plating and plated, including costs for rejections and overplating, underplating, chipping and peeling, total cost was 29.18¢ per case. By changing to stainless, plating costs, as well as rejections and returns were eliminated. Final cost of the stainless steel case was 16.7¢, representing a reduction of 42.7% in total manufacturing cost.

COST SAVING ITEM — 300

Saving of \$4.57 per Valve

Here's an interesting example of how "O" rings effected a considerable saving in relief valve made by The Hale Fire Pump Company. Use of rings made it possible to alter design of valve and eliminate five parts, cutting production costs as much as 22.4% over that of the old design, or a saving of \$4.57 per valve. In addition, assembly time was reduced.

COST SAVING ITEM — 301

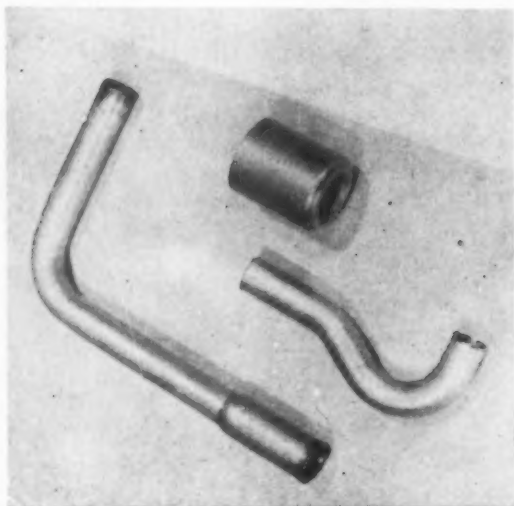


Steel Cost Reduced 10.8%; Freight Charges 16%

Cemline Corp., Cheswick, Pa., found that increased freight rates made reduction in weight of their cement-lined hot water tanks imperative. Use of high strength steel with yield point of 50,000 was decided upon, in gages 40% lighter than carbon steel gages previously required. This reduced total tank weight 18%. Cost of steel per cylinder was 10.8% less because weight saved more than offset slightly higher cost. Freight charges on every shipment—steel from the mill, and on tanks to customers—were reduced almost 16%. Also, the lighter tanks were handled with less trouble and expense.

COST SAVING ITEM — 302

Materials, Components



Six Fabricating Operations Eliminated

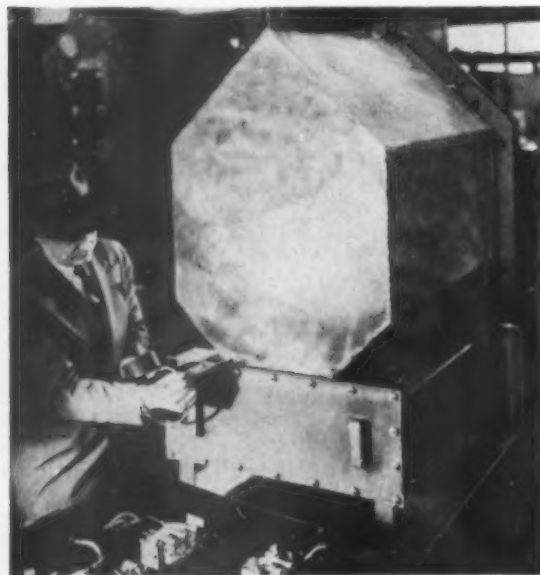
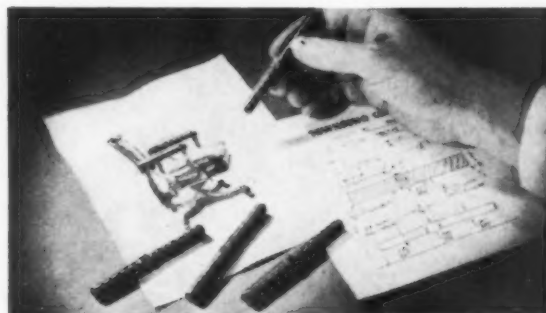
Parts for water cooler were made from Type 304 stainless sheet. Seven operations were required. Unit costs were way out of line and rejects were piling up. Silver soldering was almost impossible. The manufacturer changed from sheet to Type 304 stainless tubing. Now parts are fabricated in one reverse bending operation, six operations being eliminated, and soldering of assemblies is no longer a problem. Though the tubing costs more than the sheet, time saved in fabrication has reduced unit cost of parts.

COST SAVING ITEM—303

Save \$27.63 Per M on Cold Headed Part

By using cold headed threaded adjusting screw for tilt-back for executive chairs, the Seng Company of Chicago is saving \$27.63 per thousand. Cost of the part by cold heading, knurling and roll threading is \$16.87 per thousand, compared with lowest price quoted for screw machine production, which was \$44.50.

COST SAVING ITEM—304

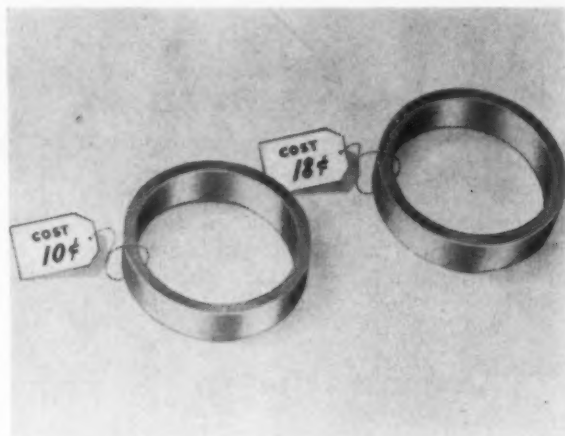


Big Weight Reduction, Lower Fabricating Costs

Redesign of direct-fired space heater using unlined heat exchanger of stainless steel instead of refractory-lined carbon steel chamber, by the Dravo Corp., Pittsburgh, reduced weight of combustion chamber from 1835 lbs. to 335 lbs., a reduction of more than 80%. No refractory lining was necessary in new design. Heating surface was reduced 53% as unlined chamber gave better heat transfer. Fabricating steps on the stainless chamber were only 67 as compared with 95 on the low carbon steel unit. Welding was reduced from 400 lineal feet to 186 feet on the new unit.

COST SAVING ITEM—305

Materials, Components



Cutter Plate Cost Reduced \$6.00 Per Unit

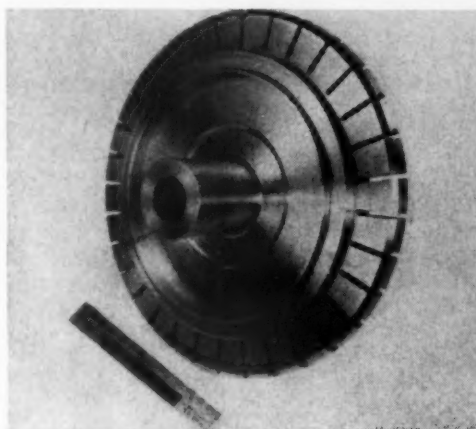
Originally the Ideal Wrapping Machine Co., Middletown, N. Y. used 18-8 chrome steel cutter plate for a caramel candy wrapping machine. It was determined that the 18-8 provided more corrosion resistance than was needed, and it was higher in cost. Changing to a straight chrome free-machining grade, necessary strength and corrosion resistance was obtained at less cost, along with good machinability to uniform tolerances—(.002-.000). Further, the part is used without final heat treatment, and the cost of the unit has been reduced \$6.00.

COST SAVING ITEM—306

Insert Cost Reduced 8¢ Per Unit

Cost to make valve seat inserts when machined from bar stock, was 18¢ each, before facing. The maker turned to stainless tubing reducing the cost to 10¢ per insert. In addition the stainless tubing provides heat resistance at temperatures up to 600 deg. F., and resistance to the corrosive attacks of high test gasoline.

COST SAVING ITEM—307



Save \$1500 Per Month

High temperature operation (1450 deg. F. for one hour) ruined steel tubing fixtures after 1 to 7 runs through furnace for heat treating small parts, and when fixtures could be salvaged, time was required for straightening them. The company seeking to lower costs, made the fixtures of stainless tubing. Fixture life has been increased to 500 runs. The company says that savings due to longer life of the fixtures and elimination of time required for straightening amounts to \$1500. per month.

COST SAVING ITEM—308

Materials, Components



Advisory Service Saves \$25,000

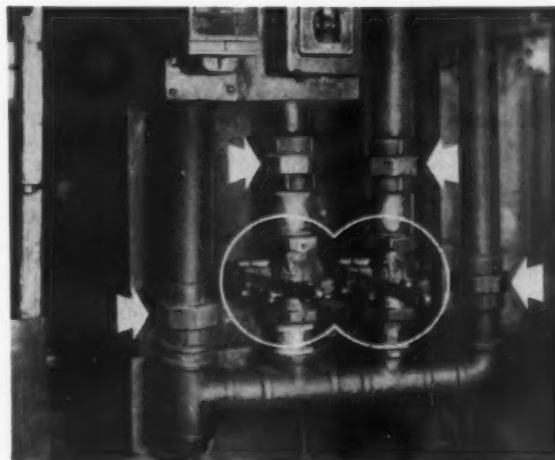
Large hardware manufacturer was buying and stocking too many types of materials, many of them differing only slightly. Technical advisory service of large supplier recommended simplified specifications for 225 items out of 360. Result: purchase of larger quantities in the most economical sizes, with reduction in inventories, and lessening of clerical work. The first year showed a saving of \$25,000.

COST SAVING ITEM—309

Valves Last Four Times Longer

Illustration shows ball type valves on quenching lines for annealing furnaces at Revere Copper and Brass, Incorporated. They are opened and closed 60 times a day under 100 psi. Unfiltered river water flows through the valves. Under these severe conditions both valves have lasted four times longer than valves previously used. The pipe unions are of cold formed steel.

COST SAVING ITEM—310



Life Expectancy of Brake Linings Increased 600%

The life expectancy of brake linings used in giant trailer-trucks has been increased some 600%, and drums can now be expected to last 100,000 miles, due to development worked out by Multi-Ring Brake Corp. of Allison, Pa., and advisory service of supplier. Drum was developed using $\frac{1}{8}$ " x $3\frac{1}{16}$ " dead-soft square edge copper bar bent edgewise and formed into rings which are alternated with the steel rings in the drum. In addition to mileage gain, repair and maintenance costs are substantially reduced.

COST SAVING ITEM—311

Materials, Components



Eliminate Driver Slips and \$40 Daily Damage

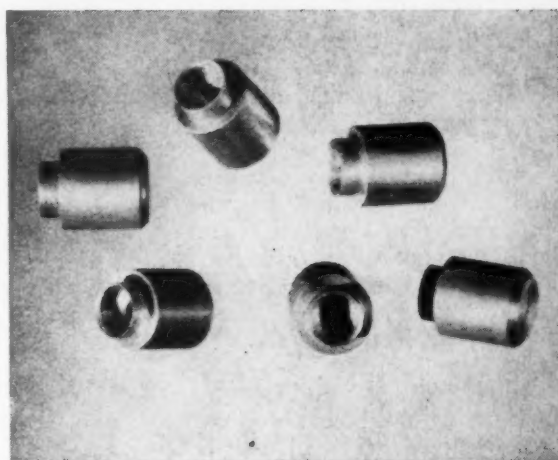
In radio assembly at plant of Emerson Radio & Phonograph Company, New York, N. Y., screw that holds loud speaker to the bracket is located adjacent to the cone of the speaker. Use of Phillips recessed head screw prevents slippage of driver and damage to cone. Previously, cost of each slip was 40¢ per cone, including handling and installing new cone, and about 100 cones were damaged daily at cost of \$40. per day.

COST SAVING ITEM—312

Production Increased 10%; Tool Life Increased 96%

Screw Machine Specialties Co., Pittsburgh, sought means of reducing cost of small machined parts made on automatic screw machines. Standard part was selected for testing of free-machining screw stock against standard B-1113 bessemer bar stock. The part was a $\frac{5}{8}$ " (OD) drum nut made in large quantities and later swaged to heads of grease drums. Making tests under identical conditions it was discovered that output could be increased 10% and tool life increased 96% by use of the new free-machining stock. Twice as many parts were produced per tool change. Also, because of formability of the new stock, rejects were reduced in later swaging operation.

COST SAVING ITEM—313



Phillips Screws and Power Drivers Speed Production

Head of engineering department of The Globe Wernicke Co., which in addition to office furniture and equipment, is making refrigerated lockers, states that use of Phillips recessed head screws and power drivers speeds up production, and eliminates burring and damage to assembled parts by driver slippage. He further said that if the recessed head screws were not used, the cost of producing one complete unit would probably go up by about \$50, due to time loss. Most of the units are 60-drawer units, each unit taking 324 $\frac{1}{4}$ " x 8 screws and 6,396 $\frac{1}{2}$ " x 8 screws. About 350 screws are also used on freezing unit.

COST SAVING ITEM—314

Products Finishing Offers Definite Possibilities for Big Savings

PRODUCTS finishing, involving metals, wood and plastics, calls for an extraordinary variety of operations and materials, for finishes are of such varied character and for such varied purposes.

The basic operations in metal finishing may be grouped into three broad classes, namely: grinding and polishing, metal coating by electroplating or immersion, and the application of non-metallic finishes.

The largest single item of cost in metal finishing is direct labor, and hence the most direct line of attack in reducing costs lies in the use of equipment, materials and methods that speed up operations for increased production, and which in many instances provide a better type finish than current operations.

The advisability of installing automatic handling equipment depends upon the volume and similarity of work to be done, and the adaptability of the system to varied models, styles and sizes for automatic handling. Aside from the direct labor savings made possible by automatic equipment, savings may be earned in the reduction of general overhead, improvement in quality, and reduction in reject losses.

Purchasing men may find in the news of developments in finishing equipment and materials, and improvements in methods, processes, etc., the desired means for making big savings in the finishing operations in their own plant, as well as in the plants of suppliers. As in the case of machine tools, many manufacturers seem loath to replace obsolete operations with the newer equipment and methods that are assurance of lower costs, with the result that they are likely to find themselves trailing in the race for lower costs and better quality.



Obsolete methods often basis of high costs, inferior quality and excessive rejects

Improved finishes and lower costs justify study of new methods and processes

One company is saving \$100,000 annually by eliminating hand finishing of plastic parts

For the application of non-metallic finishes to metals—painting, lacquering, enameling, etc., conveying, spraying and baking equipment are now available for assembly line sequence, that materially increase production and improve quality of finish.

Likewise, in the finishing of products of plastic or wood, new processes, materials, methods and equipment are available that are assurance of increased production and lower costs.

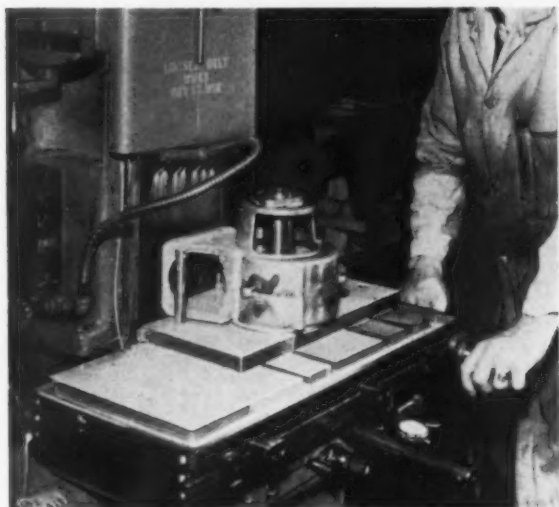
Space does not permit detailing finishing methods and the myriad of different types of equipment, tools and materials, that make for lower costs in product finishing. The brief case histories on the following pages are merely indicative of the fact that the substitution of obsolete practices with the highly

efficient time and labor saving methods and equipment now available, are big dividend-paying investments.

These illustrated paragraphs tell about some remarkable production increases, the elimination of rejects, and money savings of more than ordinary interest. For example, one company is saving \$100,000 yearly by eliminating hand-finishing of molded plastic parts; another estimates savings of \$18,660 yearly by the installation of a new cleaning unit, and another is saving \$20,000 annually by the adoption of coated abrasive belts.

Today's highly specialized materials, equipment and tools are the basis of substantial savings from the foundry on through cleaning, grinding and polishing of complete parts, in spray booths, and drying and baking operations.

Product Finishing



Finer Finishes 100% Faster

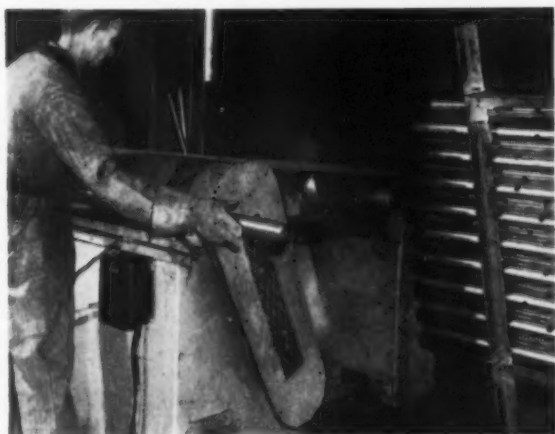
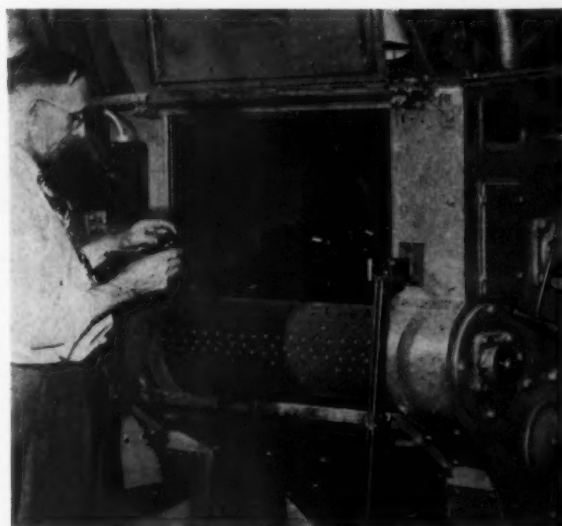
For grinding aluminum motor housings on domestic oil burners to tolerances under .005 of an inch, the Automatic Burner Corporation of Chicago switched to wet-or-dry abrasive belts. This precision machining job requiring an absolute right angle between two sides was formerly handled on a milling machine. Wet grinding with coated abrasive belts has produced finer finishes and cut grinding time in half.

COST SAVING ITEM—315

Tumbling and Controlled Blast Save \$100,000 Yearly

The Minneapolis-Honeywell Regulator Co. is saving \$100,000 yearly by eliminating the hand-finishing of molded plastic parts. The flash and fins are removed by placing the parts in a 20" x 27" tumbling-controlled blast of small non-abrading pellets.

COST SAVING ITEM—316



Abrasive Belt Saves \$16,800 A Year

Quickly absorbing conversion cost to a new wide-belt sanding method in a matter of days, Ohio manufacturer went on to save \$16,800 in the following 12 months. By the old method 1 operator deburred and finished 250 posts per day at a cost of 5¢ per post. The new method enabled 1 operator to turn out 1,500 posts per day at 1/3¢ per post, thereby increasing production 500% and saving 4-2/3¢ per post. The conversion consisted of a 19" x 132" grit 36 aluminum oxide abrasive metal working cloth belt running over 5 contact wheels mounted flush side by side tracked with a shop-made backstand roll.

COST SAVING ITEM—317

Product Finishing



\$20,000 Annual Saving

\$20,000 annual savings were made possible by the adoption of coated abrasive belts for the grinding and finishing of washers and ironers by the Thor Corporation, Chicago, Ill. The belts, backed with type "K" wheels, cut a three-step operation to a single step, jumped production from 17 to 85 pieces per hour on grey iron agitator rings for Thor washer; and doubled the rate of removal of flashings from gray iron castings.

COST SAVING ITEM—318

Grinding Time Cut 50%

The Ladish Company, Cudahy, Wis., changed from grinding wheels to resin bond belts for heavy grinding operation on high pressure-high temperature pipe fittings. As a result, production per operator rose from eight to 17 pieces per hour along with improvement in quality of workmanship.

COST SAVING ITEM—319



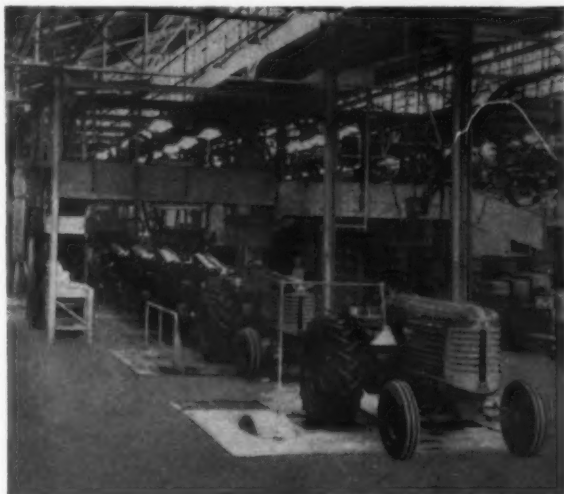
Airless Blast Cleaning Saves \$18,660 Yearly

Installation of airless blast cleaning unit at the Unit Drop Forge Div. of the Fuller Manufacturing Co., reduced number of rejects and improved appearance of product, and the waste of damage, distorted and burned forgings was practically eliminated. Also, \$1000 annually is now saved that was spent for outside cleaning. Formerly 5 pickling tanks, 2 tumbling barrels and an airblast table were utilized to clean 1,000 tons of forgings. Labor requirement was 8 men, 8 hours each, at a total cleaning cost of \$3.19 a ton. With the new installation, 1000 tons of forgings are cleaned each month at a cost of \$1.635 a ton. Only two men at eight hours each are now required. This is a saving of \$1.555 a ton; \$1,555. monthly, and \$18,660. yearly.

COST SAVING ITEM—320



Product Finishing



Finishing Production Increased 50%

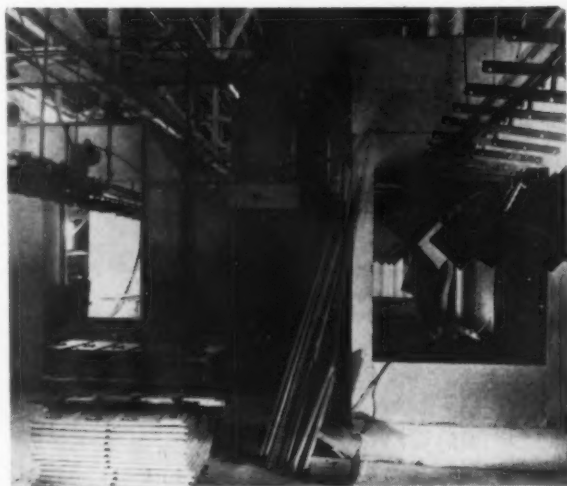
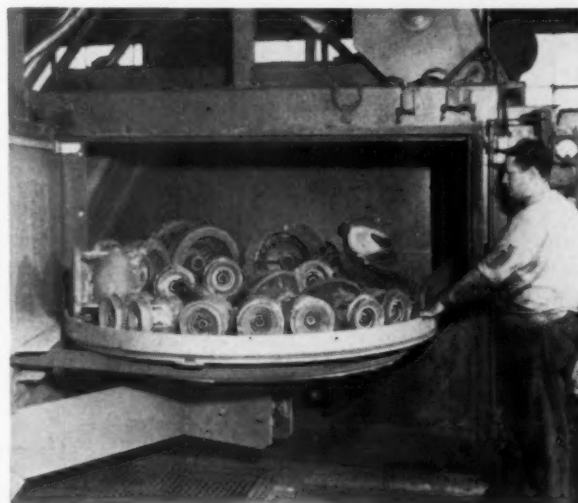
Tractor finishing layout of the Oliver Corp., Charles City, Ia., consists of three conveyORIZED systems so located and timed as to make delivery at specified points at the proper time. Wash units, paint spray booths, dry-off and finish bake ovens are specifically located for efficiency and fast production. Increase in finishing over methods formerly used is 50%.

COST SAVING ITEM—321

Swing Table Saves Foundry \$5290 Annually

Layne & Bowler, Inc., Memphis, Tenn., are saving \$5,290. a year by the use of a 72" swing table which cleans 6 tons of gray iron and bronze castings, weighing from 1 to 1100 pounds each, in less than four hours. Labor is 12 man hours. The cleaning cost is \$4.90 per ton. Former method took 9½ hours, and 28½ man hours, and the cleaning cost was \$9.25 a ton. This makes a saving of \$4.35 a ton or \$5,290 a year.

COST SAVING ITEM—322



Silicone Grease Solves Drying Oven Problem

Burned out conveyor bearings and grease drippings on freshly painted electrical equipment were two major drying oven problems that faced engineers of Mullenbach Electrical Mfg. Co., Los Angeles. At a temperature of 375 deg. F. bearing failures were common. Two years ago Mullenbach repacked the conveyor bearings with a silicone grease. Since, there have been no bearing failures, saving maintenance costs. Re-lubrication twice yearly keeps conveyor working perfectly.

COST SAVING ITEM—323

Product Finishing



Dry Japan Finishes at 55% Time Saving

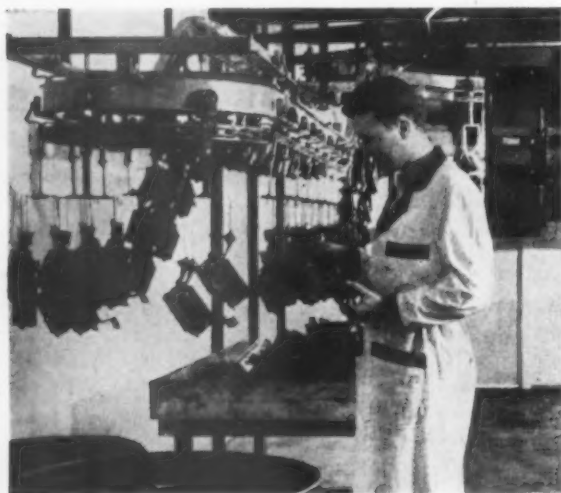
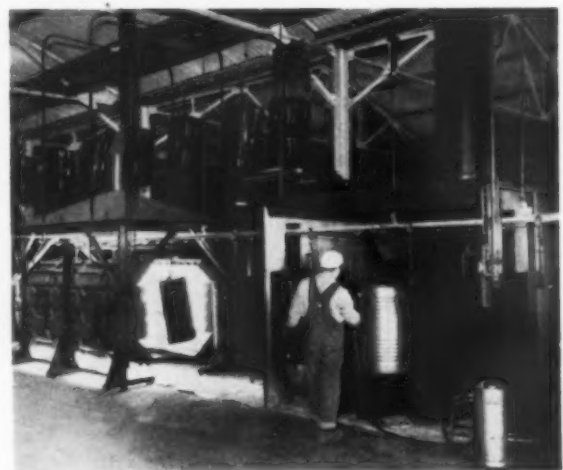
Before installation of conveyORIZED infrared oven at U. S. Wire Spring Co., production of wire springs was handicapped by slow drying of protective finishes. Since installation of new automatic baking unit, the same number of black-japanned springs has been turned out in ten hours as was formerly turned out in 24—a time saving of more than 55%. The oven maintains a temperature of approximately 250 deg. F. Springs do not have to be handled during drying operation. Operator of spin coater is able to do the whole job of painting, baking and collecting of finished springs.

COST SAVING ITEM—324

Low-Cost Drum Finishing

Illustration shows low cost metal drum finishing in plant of chemical company on the West Coast. The drums are placed on revolving turn table in spray booth; spider type hook holds drums in vertical position on trip through drying oven. The drying cycle is three minutes, and the oven is capable of baking 360 drums per eight-hour day. The oven is about 4½ ft. long; connected load about 20 KW.

COST SAVING ITEM—325



Degreased Going — Painted Coming

A 55% saving by using infrared for degreasing and for baking paint, marks the experience of the Automotive Stamping & Manufacturing Co., Detroit, cleaning and painting electrical outlet boxes. Two infrared ovens are mounted side by side. Conveyor carries boxes through the degreasing oven which burns grease from boxes in about three minutes. Conveyor continues on to a paint dip tank, and boxes are dipped and then carried through the second oven in about five minutes with paint baked. The same worker that hangs the boxes to be degreased, removes painted and baked ones from the same conveyor.

COST SAVING ITEM—326

Product Finishing



Crank Handle Finishing Speeded 1900%

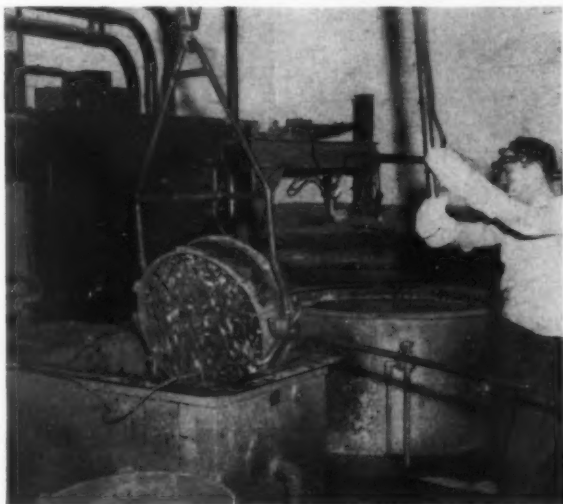
Balcrank, Inc., Cincinnati, Ohio switched to a formed roll grinder with a squirrel cage jig, and stepped up production from an original rate of 50 per hour to a high of 960 cranks per hour, converting the finishing of steel crank handles from a hand to an automatic operation.

COST SAVING ITEM—327

Parts Washer Saves \$5.22 Daily

Portable, compact small parts washer used by the Bell & Howell Company, saves \$4.32 a day in labor and \$.90 a day in material, or a total of \$5.22, and paid for the cost of the unit in about two weeks. Savings vary from 5% to 35% on different parts. The washer, which is air operated, obviates hazard of sparks igniting flammable vapors.

COST SAVING ITEM—328

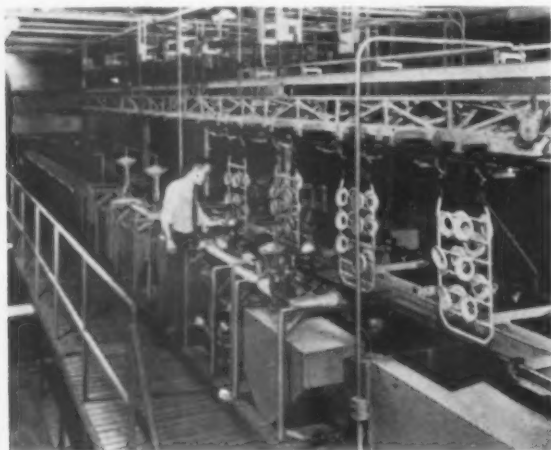


Heat-Treating Cost Cut 66%

Former method of cyaniding production of 200,000 pounds per month of small parts at the Bassick Co., Bridgeport, Conn., was replaced with gas-cyaniding furnaces of forced convection type. Not only have costs gone down, but total heat treating production from the same floor space is 59% higher than before. The new furnaces handle big loads, averaging 400 to 600 pounds net. Case hardness and depth are more accurately controlled. The change to the new method has saved the company about two-thirds of its heat treating costs.

COST SAVING ITEM—329

Product Finishing



Production Improved; Rejects Halved

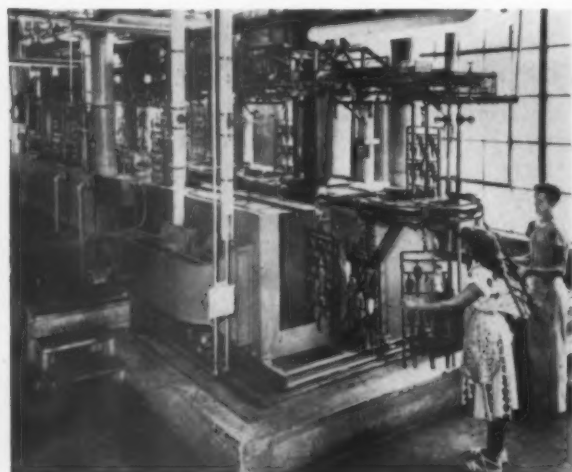
An Indiana rubber manufacturer had problems in connection with plating job in a special process. To meet the problem of a high number of rejects and slow production, the company installed fully automatic plating equipment. As a result the percentage of plated parts requiring processing has been cut in half; layout of new equipment has reduced direct labor by 27%; overall floor space requirements have been greatly reduced; and, maintenance time required to keep units in good operating condition has been reduced substantially.

COST SAVING ITEM—330

Rejects Eliminated; Tool Life Increased 4 to 5 Times

Manufacturer of rock bits installed two electrode type electric salt bath furnaces for neutral hardening and drawing of entire production of paving breakers, road bed chisels, rock bits, etc. An average of 480 pounds of tools are hardened in an hour, working dimensions of furnace being only 36" long x 11" wide x 36" in salt depth. Hardness never varies more than one point from Rc 52. This uniformity permits the use of plain carbon steel with major savings over normal practice of expensive alloy steels. In recent production of 30,000 tools not one tool was rejected because of heat treatment. Tests in service show that the life of the tools was increased four to five times.

COST SAVING ITEM—331

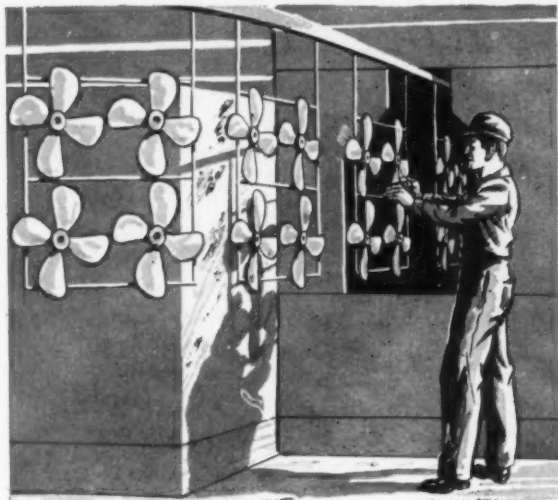


Production Increased 25% — Now 1500 Parts Per Hour

By the installation of an automatic plating process, a Pennsylvania manufacturer stepped up production 25% to 1500 parts, improved quality of plating job, and succeeded in reducing rejects to one-half of one percent. Moreover, the new installation made it possible to save 240 man-hours per week.

COST SAVING ITEM—332

Product Finishing



Saves \$800 Monthly Preparing Metal for Painting

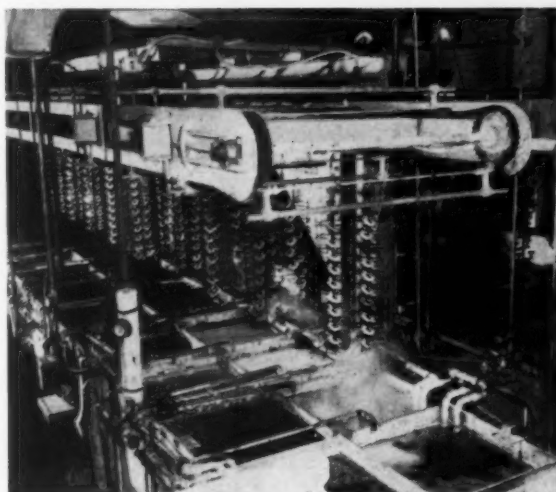
Kansas manufacturer of electrical appliances changed his method of preparing metal for painting in 1949, to a new method combining cleaning and phosphating in simultaneous operations, eliminating equipment. And, in addition to saving time, saving paint and reducing heating and maintenance costs, the new process produced excellent paint adhesion, protecting the metal against corrosion before and after painting. The manufacturer recently estimated that he now saves approximately \$800 a month by means of the new method.

COST SAVING ITEM—333

Brass-Cleaning Formula Makes Big Savings

Since 1948 a large electroplating job-shop in California has been cleaning brass and copper parts with a new chemical formula that practically eliminates the tarnishing which often prevents good plating. The new cleaner has effected two money-saving results: (1) Big reduction in the number of rejects which must be stripped and replated at considerable cost; (2) Elimination, in many cases, of a copper strike and rinse formerly required to assure adhesion of the nickel and chrome plates subsequently applied to the parts.

COST SAVING ITEM—334



Power Brushing Speeds Production, Reduces Rejects

New finishing techniques involving the use of power brushes in Auto-Lite plant at Sharonville, Ohio, has made possible mass production of automobile bumpers at lower unit costs, and also materially reduced percentage of rejects. The brushes prepare a smooth surface on the bumpers prior to plating. Rotary unit is used for the top edge, in-line for the bumper face, and end-machines for curved ends of bumpers. Heads on machines rotate at 2100 rpm.

COST SAVING ITEM—335

Product Finishing



Polisher Stops Rejection Losses

Hard set up wheels were being used to rough aircraft flap tracks (cast aluminum) to remove milling cutter marks, and finish preparatory to plating. Radius and face flatness must be held to precision aviation tolerances. Craftsman polishers could not perform on set-up wheels with rejections lower than 25% of production. Belt-backstand method was installed, using canvas hard density contact wheel, grit 80-X heavy duty belt for roughing, and grit 180-X for finishing. Production costs were cut 80%; inspection rejections cut from 25% to 1%; one operation eliminated, and operators took true craftsman's pride in the better finish.

COST SAVING ITEM—336

Production Increased 28%

Shop was using set-up wheel method for finish grind, outside edges, air scoop flaps (magnesium castings). Change was made to belt backstand method, with belt speed of 8,500 SFPM. Production per belt was 4 to 1 over wheels, and the rate of production was increased 28%. Costs were cut substantially, plus improved finish and uniformity.

COST SAVING ITEM—337

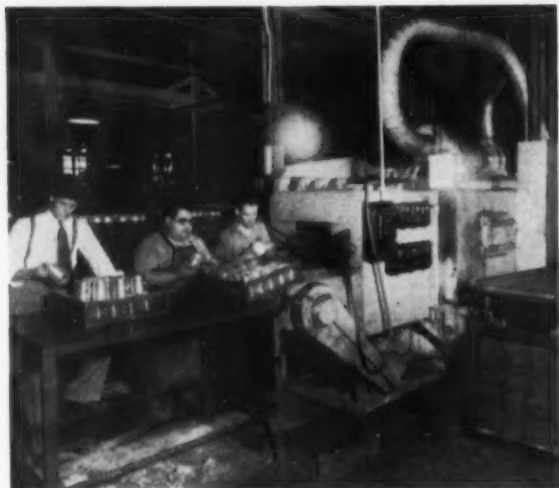


Output Jumped 400%

Machine builder was using set-up wheels for grinding, finishing and polishing pipe posts and cutter plates, plus grease wheel for the cutter plates. He installed a backstand with double idler pulley, the contact wheel being of medium soft canvas, 12" x 4" x 1½", and abrasive belt, grit #80, 4" x 14'. Belt speed was 7,000 SFPM. This installation resulted in production rate of 171 lengths of pipe per belt, and 29 cutter plates per belt (rough and finish). For the pipe operation, equipment was reduced 50% and one operation eliminated, and the production increased per man-hour 4 to 1. On the cutter plate operation, three operations were eliminated, equipment reduced 76%, production per man-hour increased 3½ times.

COST SAVING ITEM—338

Product Finishing



Cleaning Compound Cuts Material Costs One-Third

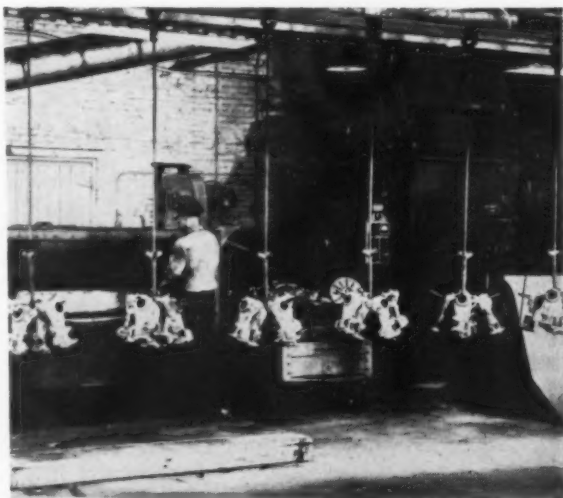
A Midwestern manufacturer of oil washed air cleaners, dissatisfied with emulsion cleaner used, changed to a new solvent and emulsion cleaning compound after testing a concentration of one part to 50 parts water at 120 deg. He reports that the company is saving one-third on material costs alone, and getting better paint adhesion than formerly.

COST SAVING ITEM—339

Money-saver on Weld Grinding

Lower total grinding costs, along with longer cutting-wheel life, and no loss due to breakage, are reported by H. Western, superintendent of Shop, C. I. Hayes Inc., Providence, R. I., who has been using molded disc grinding wheels on an off-set portable grinder, for over a year.

COST SAVING ITEM—340



25,000 Small Castings Cleaned Daily

One man is able to handle the cleaning of 25,000 pieces of small intricate castings every day, with rotary blast cleaning unit in the form of 14' barrel and a 9' table plus an automatic conveyor which brings the casting direct from shake-out to the cleaning station, at the Freeport Works of the Fairbanks, Morse Company. The one man keeps up with the output of this highly modern mechanized foundry. Castings are mostly gray iron and range from 2 ounces to 120 pounds.

COST SAVING ITEM—341

Modern Materials Handling Key to Substantial Savings



MORE and more it is becoming recognized that materials handling presents one of the most vulnerable spots in the drive to cut costs, and that in many manufacturing and industrial operations it offers remarkable opportunity for reducing excessive labor, packaging and other costs. It is the consensus of many industrial leaders that materials handling represents at least one third of the manufacturing cost of most products; that in some cases it may be as much as 50%.

At current high labor rates, the cost of unloading trucks and railroad cars, warehousing, and the many other material movements throughout a plant assume staggering figures.

It is also recognized that aside from the huge savings made possible by mechanized handling, tiering, and other factors, added savings of large proportion are in order. These may involve fuller use of warehouse through tiering—thus avoiding new construction, savings through palletizing and unit loading, the elimination of demurrage, greater safety and so on. Such savings are by no means limited to packaged products

for equipment is now available for the low cost handling of almost any type of heavy units or bulk material—newsprint to textiles and lumber, metals, mine and quarry products and, all types of manufactured parts.

In the light of today's high labor costs, the statement is made that an investment of as much as \$20,000 for modern equipment is economically justified if it will remove but one man from the payroll. It is pointed out that such an investment would easily earn \$50 a week in wages, and also save the extra investment per worker for training, insurance, social security, and other expenses.

Materials handling equipment manufacturers present industry with an amazing array of materials han-

Materials handling approximates from 30% to 50% of manufacturing cost

Modern equipment provides means for lowering handling costs 50% or more

Savings made possible extend far beyond the initial reduced handling costs

dling equipment. There is almost infinite variety of gas and electric trucks, tractors, cranes, hoists, derricks, power "walkies", and many types of belt, roller, wheel conveyor, and overhead systems, trolley systems and elevators—skids, tote boxes, pallets and sleds.

In the past few years many manufacturers have found that modern materials handling equipment has been a dependable means for reducing dangerously high break-even points. Tonnage handling costs have been reduced from dollars to cents, transport trucks and railroad cars are released quickly, and the quicker movement of materials through warehouses and through production has helped materially to offset increasing manufacturing costs.

Materials Handling



Storage Capacity Tripled

Handling of bagged chemicals and bales of fabric at plant of the Hanes Dye and Finishing Co., Winston Salem, N. C., was expensive, slow and tedious. One 2,000 lb. gas-powered fork-lift truck was installed, along with standard-size, slat-type, double faced pallets. All materials are now kept in unit loads. Fifty-pound bags are palletized, 40 to a pallet, as received. The truck takes them to storage and tiers them two loads high. It supplies the dyeing department 200 bags in 20 minutes, a saving in time of four man-hours in this one operation. Bales are now placed two and three on a pallet, and all handling is done by the fork-lift truck operator and one helper. Pallet loads are tiered, and storage capacity of given area tripled. Savings in bale-handling time are placed at three man-hours for every hour the truck works.

COST SAVING ITEM—342

Man-Hours Reduced 1500%

Man-hours are reduced 1500% with the help of a specially designed electric plant that powers 36" magnetic crane used by Newell Salvage Co., San Antonio, Tex., for loading scrap iron. Plant is installed atop crane cab. Formerly it took one man working a *full eight-hour day for eight days* to load a railway gondola with 50 tons of scrap. Now, one crane operator can load a car in four hours. The magnet handles as much as 7½ tons of metal at one time. The plant will also power a 40" magnet. Such plants make current available as it is needed, and can be used as auxiliary or stand-by power sources.

COST SAVING ITEM—343



Belt Unit Replaces Four Men

Conveying and handy piling unit installed by Lexington Roller Mills, Inc., Lexington, Ky., has proved a definite time and labor saver, and a much to be desired safety factor. With the aid of this portable unit two men now perform the same labor that formerly required six men. Machine is also used in loading and unloading large van trucks. The extension can be run almost to the fore part of the truck and moved backward as truck is loaded. Men are not required to lift the 100# bags to truck bed level as formerly, nor as high in storage, thus reducing possibility of strain or rupture.

COST SAVING ITEM—344

Materials Handling



Heavy-Duty Fork Truck Saves Thousands Annually

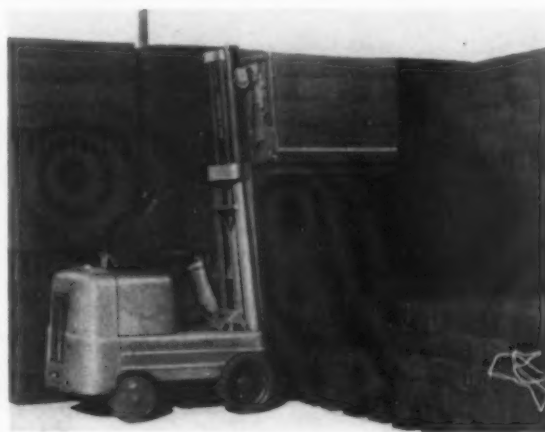
Heavy-duty fork truck, 11,000 lbs. capacity, with eight-foot chisel forks, (similar to that illustrated) handles about eight million feet of round edge lumber in and out of storage yard of the S. D. Warren Company, paper manufacturers, Cumberland Mills, Me., or a total of around 16 million feet, besides another million feet or more of square edge lumber. Purchasing Agent Kendrick Burns estimates a saving of \$12,000 to \$15,000 a year on lumber handling alone. He states that the truck has also been of immense help in handling and delivering heavy pieces of machinery, and that in this work the savings would easily run another \$4,000 to \$5,000 per year.

COST SAVING ITEM—345

Saving \$9360 Per Year

A Detroit cinder block yard using a gasoline motor fork lift truck equipped with air expanding fork, now handles 486 blocks in cubes in four minutes. Former method of loading required 45 minutes to load the same number of blocks. Annual saving is placed at \$9360. The company finds that the air expanding fork can also be used to handle bricks, bags, cartons or boxes, pallets being unnecessary.

COST SAVING ITEM—346



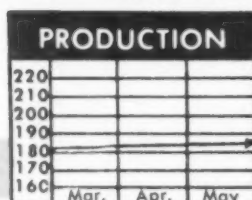
Save \$135,000 a Year

The Ewa Plantation Company, Island of Oahu, Hawaii, had been using a steam railroad to haul sugar cane from the fields to the factory for grinding. By substituting the tractor and semi-trailer equipment illustrated, for the rail transportation, a saving of \$23.00 per one-hundred tons of cane has been made in transportation costs. Purchasing Agent J. V. Kielbauch, Castle and Cook, Honolulu, reports that on an annual basis, the saving is placed at \$135,000 per year. Interesting feature is dumping system, which consists of chain net sling in trailer in which cane is loaded, with dumping chain slings fastened to one side and hoisting manifold on the other, the load being lifted out by crane.

COST SAVING ITEM—347

(Please turn to page 171)

Where We Stand

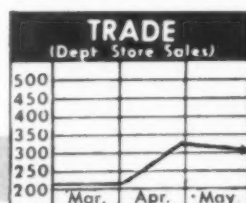


Today's Business Trends As
Reported In Current Statistics

	BASE	LATEST	MONTH AGO	YEAR AGO	% OF CHANGE IN MONTH	% OF CHANGE IN YEAR
Industrial Production Index 1935-39=100		188(est).	184	179	+ 2.1	+ 5.0
Steel Production (Weekly) 000 net tons		1,931	1,906	1,762	+ 1.3	+ 9.6
Electric Power Production (Weekly) . . . mil KWH		5,872	5,898	5,284	- 0.4	+11.1
Bituminous Coal Production (Weekly) . . . 000 net tons		10,780	11,425	11,210	- 5.6	+ 3.8
Auto, Truck & Bus Output (Weekly) . . . units		139,800	133,501	121,845	+ 4.7	+14.7
Petroleum Output (Weekly) 000 bbls.		4,988	4,932	4,897	+ 1.1	+ 1.9
Engineering Construction (Weekly) 000 \$		209,698	229,560	128,379	- 8.6	+63.3



	BASE	LATEST	MONTH AGO	YEAR AGO	% OF CHANGE IN MONTH	% OF CHANGE IN YEAR
All Commodities (BLS) 1926=100		154.9	152.1	155.4	+ 1.8	- 0.3
Farm Products 1926=100		162.9	157.9	170.3	+ 3.2	- 4.3
Metals & Metal Products 1926=100		170.1	169.7	168.9	+ 0.2	+ 0.7
Building Materials 1926=100		194.7	193.1	195.2	+ 0.8	- 0.3
Steel Billets (Pittsburgh) net ton		\$53.00	\$53.00	\$52.00	0	+ 1.9
Steel Scrap, heavy melting, Pitts. ton		35.75	32.75	22.75	+ 9.2	+57.1
Copper, electrolytic lb.		.19 1/2	.19 1/2	.18 1/2	0	+ 5.4
Cotton, mid. 15/16" lb.		.3329	.3318	.3398	+ 0.3	- 2.0
Rubber (Rib-smoked sheets) lb.		.28 1/8	.23	.18 1/4	+22.2	+54.1
Wheat, No. 2 bu.		2.63 1/4	2.61 5/8	2.58 1/4	+ 0.6	+ 1.9



	BASE	LATEST	MONTH AGO	YEAR AGO	% OF CHANGE IN MONTH	% OF CHANGE IN YEAR
Dept. Store Sales Index (Fed. Res.) . . . 1935-39=100		300	320	334	- 6.2	-10.2
Commercial Failures (Dun & Bradstreet) . no.		199	203	193	- 2.0	+ 3.1
Freight Carloadings cars		744,040	700,129	768,337	+ 6.3	- 3.2

FINANCE

	BASE	LATEST	MONTH AGO	YEAR AGO	% OF CHANGE IN MONTH	% OF CHANGE IN YEAR
Stock Prices (Standard & Poor's) 1926=100		145.2	142.8	118.1	+ 1.7	+22.9
Bank Clearings (New York) mil \$		7,126	6,704	6,803	+ 6.2	+ 4.7
Federal Reserve Credit mil \$		17,978	18,068	20,559	- 0.5	-12.5
Currency in Circulation mil \$		27,041	27,072	27,452	- 0.1	- 1.5

Materials & Markets

STEEL



With no immediate let-up in the heavy demand for steel apparent, mills were pushing production to new record heights, despite the fact that total output for the year through the end of April was somewhat short of the figure established in the similar period in 1949. One record was established

in April, not ordinarily a high production month for steel, when the mills poured 8,196,050 net tons of steel under pressure from customers trying to overcome the setback to deliveries caused by the coal strike. As this was being written steelmaking furnaces had been operating at better than 100% of capacity for six straight weeks, with 1,931,000 tons of ingots and steel for castings scheduled to be produced in the week ended May 20. "Never before", according to the American Iron and Steel Institute, "has so much steel been made in a week".

The huge appetite for steel seemed widespread among all types of industry, with the automobile, appliance, farm implement and construction industries the hungriest. Nor was the demand limited to particular products. Flat rolled items continued in tight supply, but calls for plates, bars and structural steel were numerous and insistent. As usual, the more cautious observers are speculating as to how much of the demand is based on actual needs, and how much on inventory building. But again as usual, that is one of those questions answered only by time. In view of current general conditions, it appears safe to say that regardless of the relative weight of either factor, steel production and demand will continue at a healthy rate for at least the next quarter. Bennett S. Chapple, Jr., assistant vice-president, sales, U. S. Steel Corp. of Delaware, recently stated, "barring further unforeseen operating difficulties, at least 5,000,000 more tons of steel will be produced this year than were produced last year". Almost 79,000,000 tons were produced in 1949.

Scrap prices have moved steadily up in line with the increasing activity at the steel mills, and the market at this point gave evidence of continuing very strong.

NON-FERROUS METALS

The non-ferrous market was strong throughout the month, with rises registered in zinc, lead and tin. Good industrial activity and the national stock-piling program were counted on to keep the market relatively firm in the near future, but shortages and runaway prices were definitely not expected.

Lead had moved up to 12¢ a pound at this writing as buying continued quite active. Although demand is good and the market strong at present, representatives

of the lead industry repeated warnings during the month that imports are increasing and are still a threat to the domestic industry, which has much higher labor costs than the foreign producers. They expressed themselves in favor of higher tariffs on lead to strengthen and advance the development of U. S. resources.

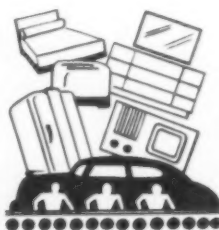
Zinc, in heavy demand, increased in price to 12¢ a pound. Tin also moved up twice in the first half of May, and was selling at 77 1/2¢ a pound at this writing. Rumors of an impending rise in copper had been prevalent for over a week, but the increase had not developed. Demand for copper is very good, however, and the Copper Institute has reported that stocks in the hands of producers and refiners in the United States declined 3,284 tons in April to 57,028 tons at the end of the month, the lowest point reached since the end of the war.

Primary aluminum production in the United States in the first quarter of 1950 went up six and a half million pounds over the similar period in 1949, according to The Aluminum Association. Production of primary aluminum for the first quarter of this year was 322,425,008 pounds.

MISCELLANEOUS

With consumption of natural rubber apparently at much higher levels than anticipated, and production at much lower levels, prices have been booming almost spectacularly. At mid-May, natural rubber was selling in London at its best price in 25 years. This development, quite unexpected in view of the widespread reports of several months ago that use of natural rubber was declining while production was increasing rapidly, has brought the question of boosting the production of synthetic rubber to the fore. John L. Collyer, chairman of B. F. Goodrich Company, has asked Government officials, including the President, to take moves to reactivate at least one synthetic plant. He said such action would help determine how well we are prepared to meet the possibility of all crude supplies being cut off by Communist military moves in the Far East rubber-producing areas. . . . The Independent Petroleum Association of America has estimated that the United States demand for all types of oil, including export, will be 6,468,000 barrels a day during 1950, an increase of 5.7% over actual demand in 1949. Meanwhile, two more U. S. Senators (Kilgore and Neely of West Virginia) assailed imports of foreign oil as

threatening the economic security of coal miners, producers, and the nation. It was rumored that some top level Governmental officials were of the opinion (in contrast to public statements made by some lower officials) that oil imports had become excessive and that some move must be made to curb them.



MANUFACTURERS' SALES, INVENTORIES AND NEW ORDERS

Value of Manufacturers' Sales Seasonally Adjusted (Millions of Dollars)

All Manufacturing	18,451
Durable goods	7,805
Iron and steel	2,054
Nonferrous metals	567
Electrical machinery	742
General machinery (exc. elec.)	1,325
Motor vehicles & equipment	1,222
Transportation equipment (exc. motor vehicles)	453
Lumber and timber products	384
Furniture & finished lumber products	337
Stone, clay & glass products	371
Nondurable goods	10,646
Food and kindred products	2,923
Beverages	601
Tobacco products	292
Textile-mill products	1,028
Apparel	1,043
Leather and products	294
Paper and allied products	486
Printing and publishing	641
Chemicals and allied products	1,152
Petroleum and coal products	1,584
Rubber products	260

Book Value of Manufacturers' Inventories Seasonally Adjusted (Millions of Dollars)

All Manufacturing	34,223
Durable goods	16,528
Iron and steel	3,632
Nonferrous metals	1,096
Electrical machinery	2,063
General machinery (exc. elec.)	3,691
Motor vehicles & equipment	2,194
Transportation equip. (except motor vehicles)	951
Lumber and timber products	698
Furniture & finished lumber products	817
Stone, clay & glass products	572
Nondurable goods	17,695
Food and kindred products	3,010
Beverages	1,118
Tobacco products	1,568
Textile-mill products	2,482
Apparel	1,436
Leather and products	598
Paper and allied products	919
Printing and publishing	628
Chemicals and allied products	2,355
Petroleum and coal products	2,516
Rubber products	653

Manufacturers' New Orders (Unadjusted)

All Manufacturing	17,962
Durable Goods	7,185
Non-Durable Goods	10,778

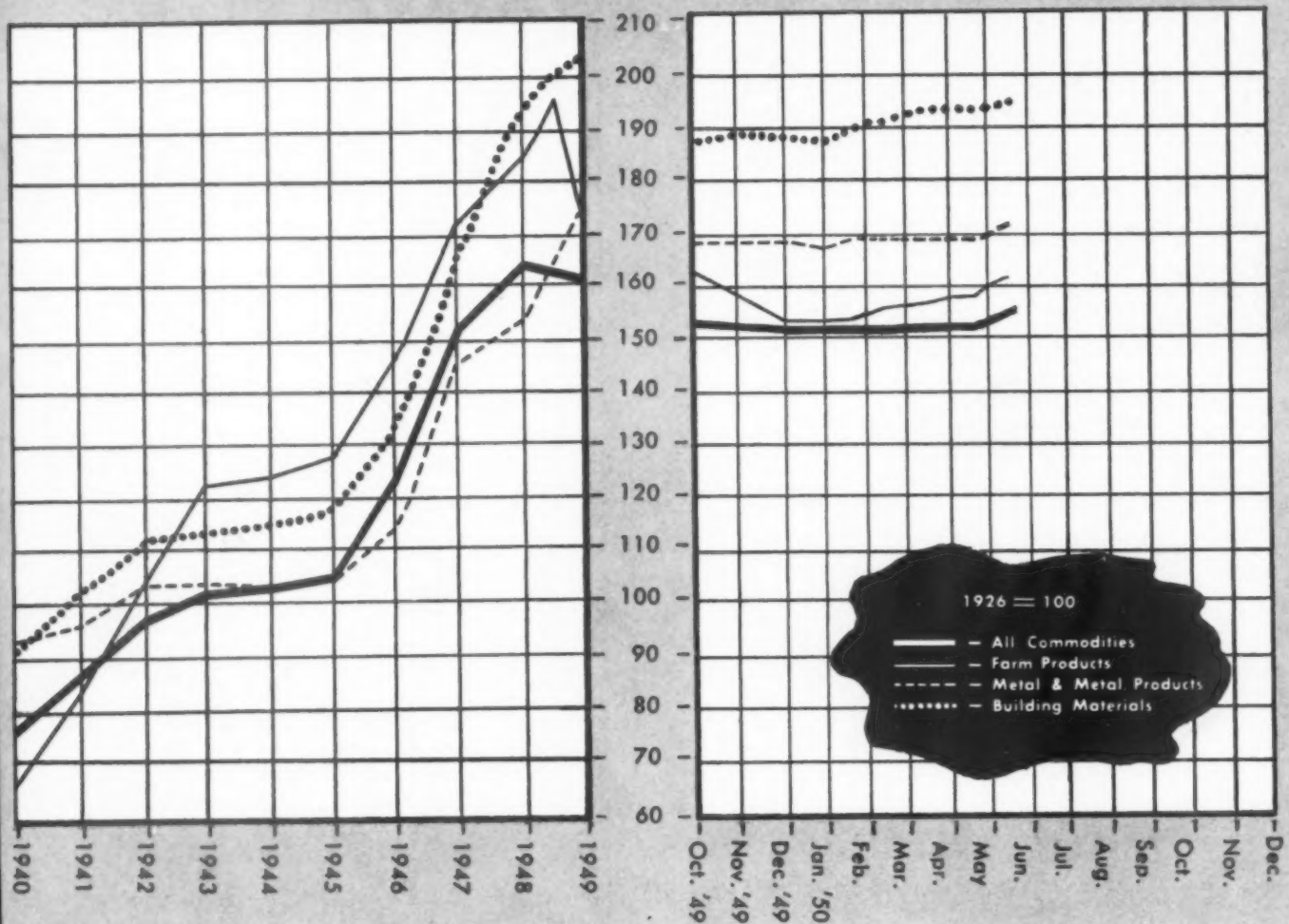
	1949					1950	
	March	Sept.	Oct.	Nov.	Dec.	Feb.	March
All Manufacturing	18,451	18,945	18,866	16,824	17,341	17,956	19,100
Durable goods	7,805	7,982	7,878	6,561	7,041	7,572	8,100
Iron and steel	2,054	1,850	1,895	1,108	1,457	1,950	
Nonferrous metals	567	546	579	500	512	595	
Electrical machinery	742	749	802	756	767	788	
General machinery (exc. elec.)	1,325	1,130	1,130	1,053	1,081	1,110	
Motor vehicles & equipment	1,222	1,739	1,579	1,371	1,258	1,316	
Transportation equipment (exc. motor vehicles)	453	492	365	359	410	391	
Lumber and timber products	384	410	436	409	454	398	
Furniture & finished lumber products	337	336	346	324	345	312	
Stone, clay & glass products	371	395	388	354	393	384	
Nondurable goods	10,646	10,964	10,988	10,263	10,300	10,384	11,000
Food and kindred products	2,923	2,969	2,989	2,890	2,834	2,872	
Beverages	601	740	589	528	522	506	
Tobacco products	292	298	285	256	280	272	
Textile-mill products	1,028	1,111	1,164	1,089	1,133	1,073	
Apparel	1,043	995	964	791	688	689	
Leather and products	294	316	294	274	254	277	
Paper and allied products	486	583	644	623	618	611	
Printing and publishing	641	573	596	509	512	668	
Chemicals and allied products	1,152	239	1,274	1,174	1,182	1,218	
Petroleum and coal products	1,584	1,598	1,618	1,575	1,654	1,585	
Rubber products	260	295	277	262	n.a.	n.a.	
All Manufacturing	34,223	31,638	31,059	30,737	30,494	31,140	31,100
Durable goods	16,528	14,741	14,266	13,870	13,646	13,869	14,000
Iron and steel	3,632	3,337	3,185	3,055	3,048	3,061	
Nonferrous metals	1,096	1,064	1,035	1,023	1,028	985	
Electrical machinery	2,063	1,737	1,648	1,603	1,568	1,605	
General machinery (exc. elec.)	3,691	3,329	3,239	3,152	3,082	3,090	
Motor vehicles & equipment	2,194	1,824	1,769	1,678	1,626	1,823	
Transportation equip. (except motor vehicles)	951	860	869	839	809	691	
Lumber and timber products	698	586	558	598	602	645	
Furniture & finished lumber products	817	754	744	717	723	781	
Stone, clay & glass products	572	527	506	492	474	494	
Nondurable goods	17,695	16,898	16,794	16,867	16,848	17,271	17,100
Food and kindred products	3,010	2,884	2,806	2,955	2,983	3,309	
Beverages	1,118	1,062	1,124	1,099	1,082	1,137	
Tobacco products	1,568	1,668	1,728	1,715	1,697	1,661	
Textile-mill products	2,482	2,219	2,198	2,218	2,254	2,331	
Apparel	1,436	1,359	1,332	1,332	1,357	1,485	
Leather and products	598	598	614	611	616	611	
Paper and allied products	919	793	756	739	737	777	
Printing and publishing	628	568	561	559	589	612	
Chemicals and allied products	2,355	2,247	2,228	2,222	2,223	2,151	
Petroleum and coal products	2,516	2,513	2,497	2,507	2,472	2,240	
Rubber products	653	586	562	537	n.a.	n.a.	
All Manufacturing	17,962					18,241	n.a.
Durable Goods	7,185					7,852	n.a.
Non-Durable Goods	10,778					10,389	n.a.

n.a.—not available
p—preliminary

SALES, INVENTORIES AND INDUSTRIAL PRODUCTION

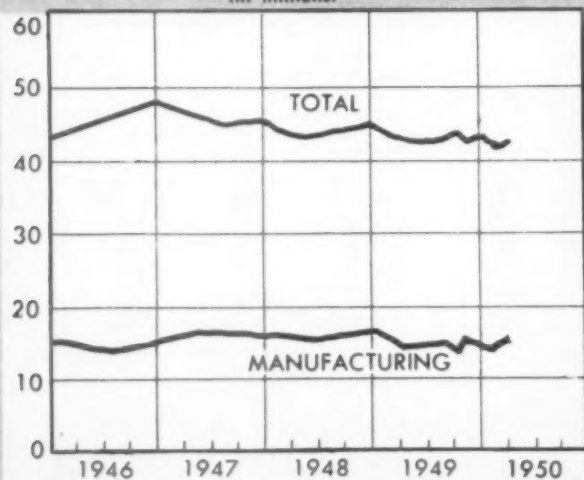


The Price Picture

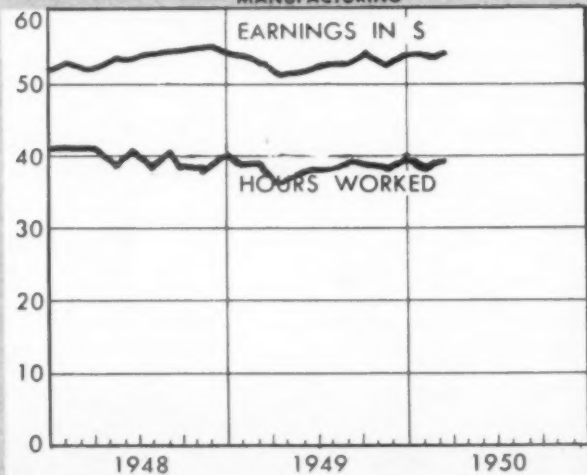


Employment & Earnings

NON-AGRICULTURAL EMPLOYMENT
(in millions)

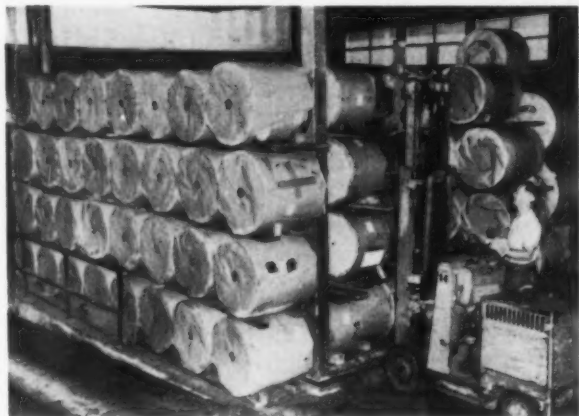


AVERAGE WEEKLY EARNINGS AND HOURS
MANUFACTURING



SOURCE: U.S. DEPT. OF LABOR

Materials Handling



Unloading Reduced 40 Man-Hours Per Car

This battery-powered fork is saving some 40 man-hours per car, unloading and storing rolls of paper stock at plant of the Dennison Manufacturing Co., Framingham, Mass. The rolls (average weight 600 lbs.) are stacked four-high in reserve storage. Unloading and storage requires only three men and a fork truck and 3½ hours time. Under previous methods involving use of two-wheeled warehouse trucks and manually operated devices, between 50 and 52 man-hours were required to unload and warehouse a car-load of paper.

COST SAVING ITEM—348

Handling Force Reduced from 15 to One

Illustration shows lift truck powered by air-cooled motor, handling baled wool weighing about 1200 pounds per bale in large western wool warehouse. Here one man is doing the entire handling job which formerly required 15 men. Besides saving time and money the possibility of personal injury is greatly reduced.

COST SAVING ITEM—349

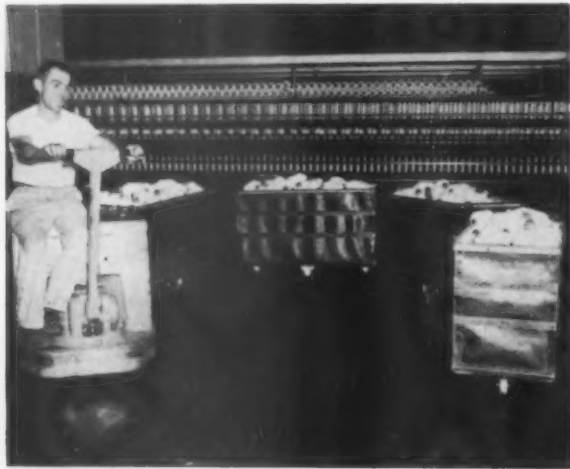


Loading Time Reduced by Three-Quarters

Illustration shows a 3,000-lb. coil of 9" rope being moved into outward shipment at plant of the Plymouth Cordage Company, North Plymouth, Mass. The truck's forks have been moved together so as to enter the core of the coil. Operation of loading box car is performed by fork truck in approximately one-quarter of the time formerly consumed by manual handling, and the number of workers is about half. The materials handling system includes overhead conveyor system, intra-plant rail line, electric industrial trucks, etc. Through use of the electric fork truck-pallet system, approximately half again as much more material is unloaded, transported and warehoused in a full shift with approximately two-third fewer workers than under manual methods.

COST SAVING ITEM—350

Materials Handling



Tractor Releases One Man Per Shift

This work saving tractor makes possible the releasing of one man per shift for other plant duties, at textile plant of the U. S. Rubber Co., Winnsboro, S. C. It is used for hauling roving trucks from the spinning frames to the warping rooms and back again. Formerly the spool-filled trucks were pushed by hand a distance of some 500 feet, part of which is on an 8% grade. The truck weighs about 300 lbs., and one man could handle at most two trucks per trip. Two men were required on each of three shifts. The tractor hauls four or five trucks per trip, cutting in half the number of trips required. Special couplings simplify the making of right angle turns.

COST SAVING ITEM—351

Keg Breakage Cut 40%

Installation of pallet system, two 4,000-lb. capacity fork trucks, and three pallet-type tractors, cut keg breakage 40%, made it possible to tier kegs 8 high, and eliminated manual stacking operations at the Aliquippa, Pa. nail warehouse of Jones & Laughlin Steel Corporation. Sixteen kegs make one layer on the 48 x 48-in. pallets. Two layers separated by a plywood sheet for load stability are loaded onto each pallet. The kegs weigh 100 lbs. each, giving the loaded pallet a weight of 3,200 pounds. In addition to high stacking and less breakage, the operator's work is safer and easier, and more kegs are handled in less time than under the previous system.

COST SAVING ITEM—352



Eliminates Winches, Pinch Bars and Rollers

Weight of this loom, being lowered to the base of an export packing case in packing department of Draper Corp., Hopedale, Mass., is approximately 2,800 lbs. Formerly several men, with winches, pinch bars and rollers would consume several hours to position a loom for export packing. It now takes three men and the battery powered fork truck shown, only a matter of minutes to perform the same task. When case is ready for shipment the same truck moves it to shipping area and places it on a railroad car, performing the operation with a minimum number of men and considerable savings in time as opposed to former manual methods of loading.

COST SAVING ITEM—353

Materials Handling



Gravity Pays Big Dividends

Recognizing that the well known law of gravity is a dependable means for moving products down grade without the aid of power, a midwestern manufacturer decided to make an investment in a spiral-chute for moving packaged materials from packing room to a lower floor. Before the present high cost era, the expense of moving materials from one department to a lower floor was \$4,000 per year. A spiral chute was installed. Packaged materials are merely chuted to the next floor in lieu of using elevator. It is estimated that materials handling savings on an annual basis now approximate the original investment in the spiral chute, which amounted to \$2,500.00.

COST SAVING ITEM—354

Cuts Car Unloading Time in Half

A Wisconsin company purchased 25 of the portable handy belt conveyors shown in the accompanying picture. The conveyors are used for handling sacked materials, loading and unloading cars and trucks, and for moving the sacked materials through the warehouses. The conveyors save considerable time and manual effort in handling stocks. The plant manager reports that the conveyors make it possible to unload a car in about half the time of manual handling and unloading by hand trucks.

COST SAVING ITEM—355



Handling Costs Cut \$80,000 Per Year

A reduction in handling-hours of 58%, and reduction of \$80,000 per year in handling costs, marks the installation of work saving battery powered trucks which the operator guides while walking, and what are termed end-control power platform trucks, and pallets. The system was developed through analysis of former methods, and comparing costs with those of system adopted. Bales, bags, drums, rolls and boxes typify materials handled. Cars are unloaded in less than one-quarter of previous unloading time, demurrage costs eliminated, and high-lift trucks make possible utilization of storage space to ceiling height. So much time has been saved in receiving operations that handling equipment is available for use in production and for other purposes.

COST SAVING ITEM—356

Materials Handling



Delivery Now Made With One Man

A large Missouri manufacturer of furnaces found that the installation of a hydraulic lift on its two-ton delivery truck was a time and money saver. The lift made it possible to make many deliveries of equipment with one man. The previous method of manual loading made it necessary to send two men on each delivery.

COST SAVING ITEM—357

Conveyor System Cuts Foundry Costs

Complete conveyor system features mechanization of operations of a Michigan Foundry. Operating report reveals that under new system, producing castings mechanically requires less than one-quarter of the floor area needed to manufacture same number without conveyor equipment. In some operations four men now do the work of ten, and with much less effort. Conveyor system includes belt conveyor for handling sand, molding conveyor for pouring, overhead conveyor for cooling castings and delivery to shot-blast unit, apron conveyor, two belt conveyors and bucket elevator for returning sand to muller. The change-over resulted in substantial savings for the company and increased earnings for the workmen.

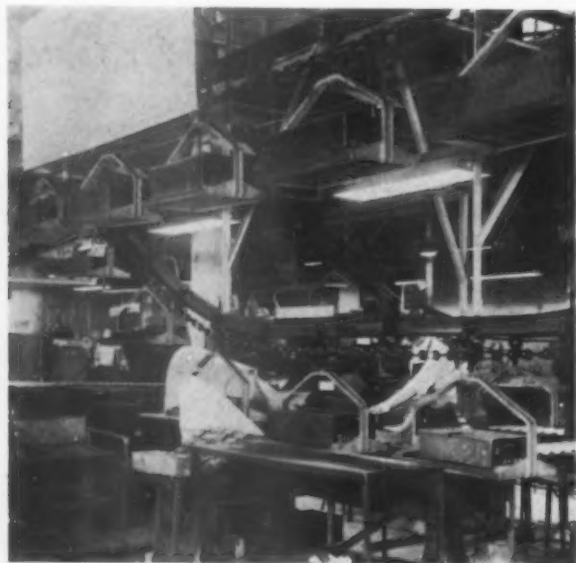
COST SAVING ITEM—358



Conveyors Used to Double Production

Installation of system involving conveyors of various types enabled leading manufacturer of accounting machines whose plant consists of four and five-story buildings with approximately 20 acres of manufacturing space, to double volume of production. System included overhead conveyors, lift conveyor, delivery conveyor for completed machines, monorail system with hoists, racks, and tramrail cranes in receiving department and packing department. Results: Time for movement of stock reduced 100%; use of double deck trucks eliminated; labor saving 25%; congestion eliminated. Monorail system savings, in receiving department were as follows: Savings in time 25 to 40%; savings in labor 20 to 25%; reduction in accidents 40 to 60%. Under old system, two days were required for movement of stock. Conveyorized parts distribution system cuts this to one day, though it can actually be done in three hours.

COST SAVING ITEM—359



Materials Handling



Man-Hours Cut to One-Twentieth

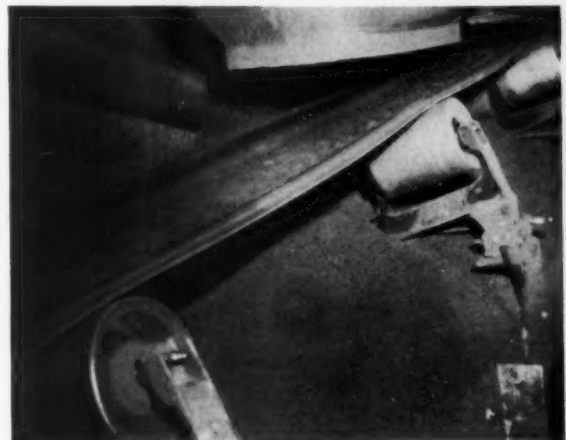
A Southern textile finishing mill reports that by use of power fork-type truck it now loads a box car with bales of finished cloth in 40 minutes. Formerly this took eight men $3\frac{1}{2}$ hours with hand trucks and manually operated stackers. That is, a total of 28 man-hours compared with 40 minutes for the truck operator and one helper, or $1\frac{1}{3}$ man-hours. With power truck, rolls in plant are stacked vertically on pallets three-high, with six rolls on a pallet. Fifty-four rolls are stacked in the same floor area that formerly stored 15 rolls when hand-stacked.

COST SAVING ITEM—360

Rubber-Glass Hot Material Belt, Big Savings

This rubber-glass hot material conveyor belt used by big foundry has proved a good investment. The belt, carcass of which is constructed with multiple plies of glass fabric with covers of rubber compounded especially to resist heat, is still in service after 14 months continuous use, whereas 10 weeks' service was considered good on belts formerly used. The glass is not affected by heat in temperature range as high as 400 deg. F.

COST SAVING ITEM—361



Rotary Clamp Fork Truck Saves \$13 Per Car

In Cleveland newspaper plant it formerly took four men four hours with hand trucks to unload car containing 38 double rolls of paper. These are 66" long and weight averages 1500 lbs., making total weight of 57,000 lbs. per car. Men could not tier rolls. Shipments were frequent and damage to paper a common occurrence. Now, one man with the rotary clamp truck unloads a car of same weight in one to two hours, tiering rolls two-high. Pallets are unnecessary in handling or stacking. Man-hour saving is minimum of \$13. per car, and besides value of paper saved from damage, personal injury hazard is minimized, and far less labor supervision is required.

COST SAVING ITEM—362

Materials Handling



Releases Most of Former Lumber Handling Crew

The illustration shows one man and fork truck raising load of lumber almost to ceiling height for stacking at plant of the Curtis Woodwork Co., Clinton, Iowa. Average load of lumber is stacked in piles 39" high, 37" deep, and weighs approximately 3,800 pounds. One man operating the truck easily handles the work and releases most of the former handling crew for other jobs around the plant. The truck is equipped with pneumatic tires to provide smooth, safe handling of bulky loads of lumber even when operating on uneven surfaces.

COST SAVING ITEM—363

Portable Elevator Multiplies Storage Space

Here a portable elevator of the telescopic type is piling crated stoves ceiling high. This is a good illustration of how modern equipment for materials handling multiplies the use of storage space, thus obviating the heavy expense of additional buildings, and the heavy maintenance and operating costs they would incur. The type of portable elevators shown includes hand and electrically operating models with capacities from 500 to 5,000 pounds, and any practical lifting height. They may be hinged or telescopic, and forked models are available for pallets.

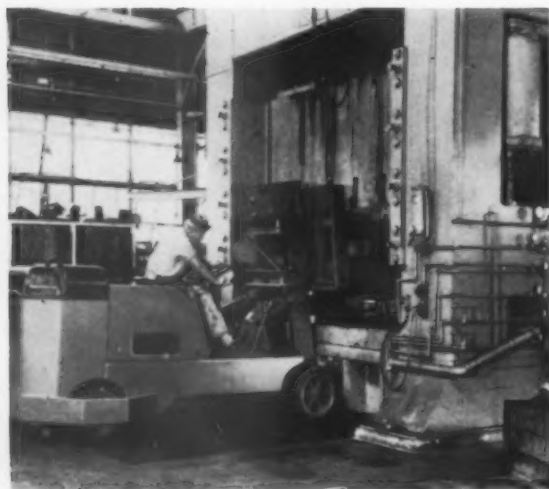
COST SAVING ITEM—364



Fork Trucks Save Thousands

Installation of heavy duty fork trucks at plant of Oliver Corp., Charles City, Ia., made possible the installation of a 1200 ton hydraulic drop press which enables the company to do its own steel sheet drawing. Truck easily handles and places 6-ton dies. Thousands of dollars are saved through elimination of need of paying outside processor, and time, labor and facilities involved in trans-shipment of materials and parts between supplier and the Oliver plant. Production schedules are more flexible due to control over drawing. The big truck picks up die, carries and places it into position in 58 seconds. On smaller unit, four castings weighing about 350 lbs. each are carried four to a pallet.

COST SAVING ITEM—365



Materials Handling



Two Years' Dollar Savings Four Times Truck Cost

Four fork trucks enabled The Pfaudler Co., Rochester, N. Y. to increase manufacturing floor space, utilize storage space 100% and cut handling costs drastically. Many jobs formerly requiring considerable manpower are now handled by one man and a fork truck, releasing several men for more productive work. In one department a 4000-lb. truck plus pallets and loading racks reduced storage space by 6,000 sq. ft., yet twice the amount of material can be stored in smaller space. In three departments alone 17,000 sq. ft. of floor space were saved for manufacturing. Another department saved 75% of its floor space. In two departments ten men formerly needed for materials handling and lifting could be transferred to more productive jobs. Actual dollar savings in two years totalled almost four times the cost of the trucks. Operation illustrated saves 10,000 sq. ft. of inside floor space.

COST SAVING ITEM—366

Chain Hoist Eliminates Elevator

Through the installation of a two-ton roller chain hoist, the W. W. Sly Company of Cleveland, who use second floor storage area for light materials used in the manufacture of air conditioning equipment, eliminated the need for an elevator installation, and also the re-handling of materials. Further material handling economies have been made possible by replacing a hand operated hoist with a ten-ton wire rope hoist, for loading and unloading trucks and freight cars. This replacement has cut handling time in half.

COST SAVING ITEM—367



Welded Steel Containers Stop Pilferage

The Gulf Oil Corporation uses 40 of these welded steel shipping containers for shipping foodstuffs and other valuable cargo to oil fields on the Persian Gulf. Previously pilferage was "terrific" and in some cases entire consignments vanished. The containers hold up to 275 cubic feet of cargo each, and serve as safety deposit vaults for the merchandise placed in them. At the Baltimore pier they are moved by fork trucks and swung aboard ship by dock cranes. According to Gulf officials use of the containers has been the only successful method of preventing pilferage of valuable cargo in the Middle East.

COST SAVING ITEM—368

Materials Handling



Save Time, Increase Efficiency Handling Parts

Woven wood and wire box trucks replaced smaller metal boxes for handling material, parts and partially processed parts through production, at The Trumbull Electric Mfg. Co., Norwood, Ohio. The easy to roll box trucks eliminated several handling operations, saving time and increasing handling efficiency.

COST SAVING ITEM—369

Light Skid Boxes Increase Storage Capacity 240%

The McQuay-Norris Manufacturing Co., Connersville, Ind., with the aid of woven wood and wire skid boxes and power fork truck, is now storing 120,000 rough aluminum castings in an area formerly capable of storing only 50,000 pieces, a 240% increase in storage capacity. Boxes are handled without extra pallets or skids, and one man now handles storage where two men previously were needed.

COST SAVING ITEM—370



Foundry Tonnage Boosted 40%

By the installation of battery powered fork trucks to work in conjunction with stationary powered belt conveyors and an extensive overhead conveyor system, the Taylor & Boggis Foundry Co., Euclid, Ohio, has obtained a 40% increase in material movement through the various departments of the plant. Productionwise, this means a 40% gain in tonnage while maintaining a labor force of the previous size. Castings are delivered to shipping area in tote boxes, where use of trucks has increased use value of storage space 50%.

COST SAVING ITEM—371

Unusual Savings Effected by Analysis of Packaging and Shipping Problems

IT would be impossible to compute the losses incurred by industry because of lack of understanding of the enormous potential for what may be regarded as fabulous savings in the common procedures of packaging and shipping. Loss and damage claims alone are now far in excess of \$100,000,000 annually, though experience has proved that protective packaging will reduce such losses and often reduce packing room costs.

To this figure must be added the many millions of dollars that are wasted because of poor selection of either cartons, boxes, crating, drums, or cooperage, unnecessary sizes, bad container design, wasted packing time, excessive weights and unnecessary freight charges. One of our large corporations seeks to save \$200,000 in freight charges annually by substituting a lighter lumber for that now used for boxes and crates. Additional losses may be charged to lack of knowledge of commodity classifications and rates, unwise utilization of the available types of transport and failure to consolidate shipments. The importance of an understanding of commodity classifications and freight rates and routing is obvious in light of transportation costs. The Westinghouse Electric Corporation alone pays out more than \$40,000,000 annually for transportation.

Purchasing Agents have a dual interest in container costs since most items purchased contain a cost for containers, and directly as the buyer of packaging supplies and containers for the products packaged by their companies. Leaders in Purchasing point out that purchasing agents should carefully investigate the possibilities of substitute or alternative types of packages, and package standardization by size and design. Further, it is recommended that purchasing agents, or buyers responsible for container procurement, visit their packing departments and



Export packaging receives rough treatment, and a practical means for reducing loss and damage claims and pilferage lies in good packaging.

The shipping department presents large area for cutting costs and reducing L & D claims

Purchasing agents have dual interest in containers from standpoint of products shipped and bought

Eastern company sees annual saving of \$200,000 by using lighter weight lumber for boxes and crates

those of other plants to gain knowledge of packing speeds, handling, and adaptability of containers used, as well as packaging and storage requirements; and that they visit suppliers' plants for first hand information on container production.

The case histories on the following pages tell about unusual savings that have resulted from packaging studies: A new type export package resulted in a saving of \$38,000 a year, and in another instance, savings in bracing and packaging materials incident to the adoption of a safe transit program, reached more than \$20,000 a year. In one shipping department packing time costs were reduced 80% and container costs 60%. A southern company reports that an automatic stencilling ma-

chine replaced 24 men formerly engaged in hand stencilling.

A study of packaging by a Denver company saved \$4.00 on each package shipped, and in another company 28 cartons were replaced by eight standard sizes.

Companies differ in authority extended to the purchasing department in the solution of container problems, developing specifications, and potential cost reduction. In some companies packaging committees, of which the purchasing agent is a member, handle the development of package and container specifications. In others there is opportunity for the purchasing agent to take the initiative in a program of container cost reduction and many have done so with excellent results.

Packaging and Shipping



Packaging Savings Total \$20,600

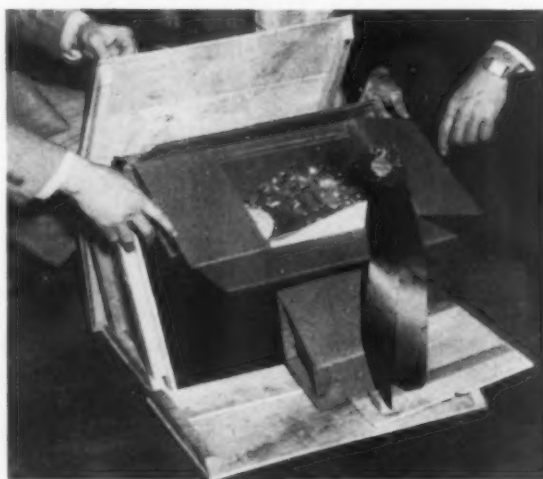
By application of Safe Transit tests to ranges produced at the Mansfield, Ohio, plant of Westinghouse, savings in bracing and packaging materials during 1949 are placed at \$20,600. In one instance, Westinghouse was able, by means of Safe Transit tests, to replace a dollar's worth of bracing by adding 50¢ to the cost of packing a range. More important, damage losses on this particular range were greatly reduced.

COST SAVING ITEM—372

Export Package Saves \$38,000 a Year

Saving of \$38,000 a year over former methods, was effected by export package used by the Burroughs Adding Machine Co., Detroit. The package consists of portable adding and subtracting machine encased in a waterproof plastic bag packed in a corrugated fiber box that is in turn encased in a moisture-proof bag and over-packed in a three-piece wirebound box. Shipping weight of package is 36 pounds. The superintendent of receiving, packing and shipping, reports the following breakdown of factors entering into the saving: 60% in container cost, 66% in packing time, 74% in master container tare weight, 45% in shipping weight and 12% in displacement. The package was awarded first prize in export division of packaging contest held by the S.I.P. & M.H.E. in Detroit last October.

COST SAVING ITEM—373



Improved Carton Cuts Cost 60%

Former method of packing PURCHASING Magazine cover plaques was virtually a two-man operation—one person stapling the plaque between two pieces of corrugated board and one inserting it into the carton, taping, labeling and mailing. The purchasing department devised a new carton which consisted of two pieces only, an interior piece that folds around the plaque and the outside container which in turn folds around the interior piece. Result was that packaging became a one-man job without necessity for stapling or double handling of pieces. The interior piece is inserted and the carton taped and labeled in one operation. Material costs were cut 25%, and labor costs were cut 50%.

COST SAVING ITEM—374

Packaging and Shipping



One Person Now Does Work of Five

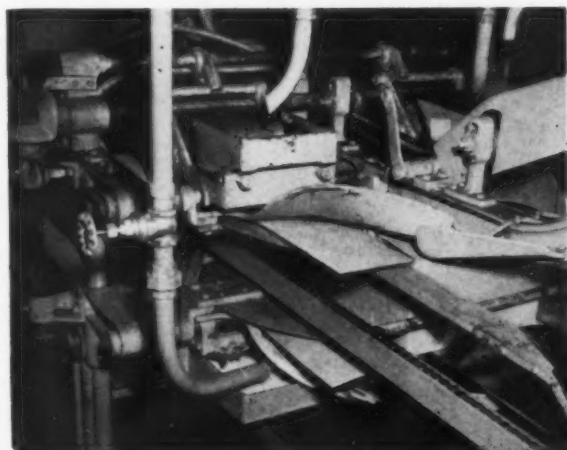
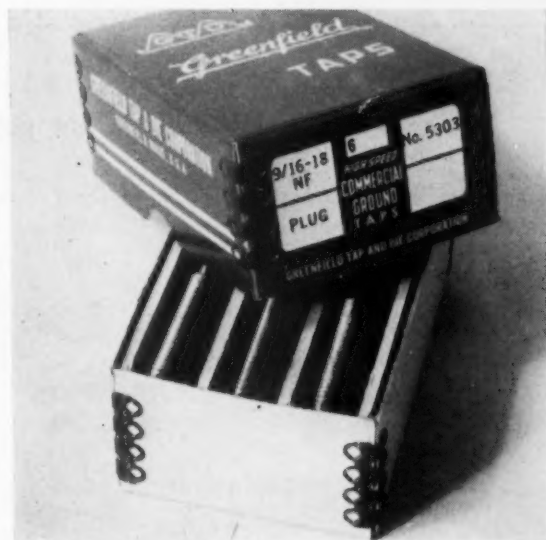
Illustration shows automatic carton printer used by Brown and Williamson, Petersburg, Va. Under previous methods, hand stenciling three sides of shipping containers required the labor of five persons in an eight-hour day. By installation of the motor driven carton printer this labor expenditure was reduced to one person and the machine doing the daily production in four hours.

COST SAVING ITEM—375

Better Package; No Increase in Overall Cost

A "cheap" package containing 12 taps involving wrapping by fours in wax paper, and an "expensive" package using a wooden "separator" tray for product protection, were formerly used to package carbon and high speed steel taps by the Greenfield Tap & Die Corp. By adopting the "expensive" package in different colors as standard, lower unit costs were possible because of larger buying quantities. The separators made it unnecessary to count and wrap the carbon taps, resulting in lower "loading" costs which offset extra cost of separators. Further economy was attained by eliminating labels and substituting direct printing with a special marking machine on the package at the time of loading. Many old box sizes were dropped in favor of fewer new ones. Result of the re-packaging was a much better package at no increase in overall cost.

COST SAVING ITEM—376



Loss and Damage Claims Practically Eliminated

Improved glue for sealing shipping cases used by The Reliance Merchandise Co., Chicago, resulted in the following advantages: (1) New employees have no difficulty sealing case by brush application; (2) Cases never come apart in handling; (3) Loss through pilferage or opening of cases in transit is negligible, and loss and damage claims reduced to point of no consequence. Illustration shows method of piping adhesive to glue pots of automatic machine worked out by another user, which supplies adhesive by gravity, and saves loss of time in refilling glue pots.

COST SAVING ITEM—377

Packaging and Shipping



Over-all Packing Costs Cut in Half

Crates for farm equipment made by Judson Bros. Co., Collegeville, Pa., called for large amounts of manpower and factory space, and also resulted in waste and dust. Following a study of its crating, the company decided to change to wirebound crates. Parts are now quickly and easily positioned on the crate base and literally wrapped up in the one-piece wrap-around "mat" that comprises the four sides of the crate. The new method resulted in a reduction of 33 lbs. or 15% in shipping weight; a reduction of 20 lbs. or 40% in container tare weight; a reduction from 25 to 10 man-minutes to pack a cultivator attachment, or 60%; and a reduction of over-all packing costs by about one-half. Shipping damage was practically eliminated.

COST SAVING ITEM—378

Save 50% of Assembly Time Cost

The Duro Test Corporation of North Bergen, N. J., manufacturers of incandescent lamps and fluorescent fixtures, was dissatisfied with carton-closing method in shipping department which was proving inefficient. To strengthen the cartons and to assemble them at lower cost, the company bought a stitching machine. By means of this machine the cartons are stitched in half the time, saving 50% of the previous assembly time cost. Moreover, the cartons are featured by added strength, and the holding power of the wire stitches is unaffected by moisture.

COST SAVING ITEM—379



\$4.00 Saving on Each Package

Faced with what seemed abnormally high packaging and shipping costs, the Eberhardt-Denver Company of Denver, Colo., manufacturers of speed reducers weighing from five to 1000 pounds, made careful study of its packaging practices. Heavy, carefully constructed containers for reducers weighing over 100 pounds were replaced with "brief packaging" consisting of flat steelstrap, heavy paper and wood. There is a \$4.00 saving in materials and labor on each package, and full protection is given to the product. The new packaging method is faster and easier than the old.

COST SAVING ITEM—380



Packaging and Shipping



Cost of Taping Two-Package Sales Units Cut in Half

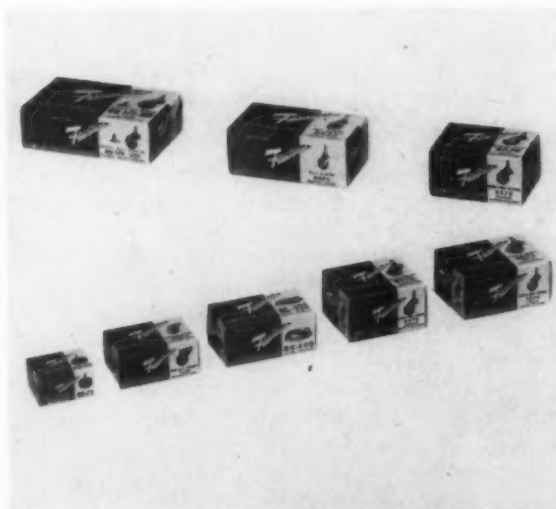
Use of $\frac{3}{4}$ " cellophane pressure-sensitive tape on plant improvised machinery enabled Ballard & Ballard, Inc., Louisville, Ky., to tape two-package retail units 16 times faster than former method, and at half the cost. The tape is applied automatically as the two cartons pass through the machine side by side, to the front and rear sides, and smoothed out by brush near taping arms.

COST SAVING ITEM—381

Tape Saves Carton and Packing Costs

Maker of light-weight aluminum and plywood furniture saved on labor and carton costs by use of cloth-backed industrial tape featured by unusually strong adhesion, tensile strength and tearing resistance. Assembled tables used too much space, and it was decided to ship pieces knocked down for later assembly. By use of 10-inch strips applied in two places, tubular parts are held together and immobile in carton, and parts arrive at destination free of mars and scratches. Shipping space saved and simplicity of packaging operation makes for substantial savings in labor, time and service costs.

COST SAVING ITEM—382

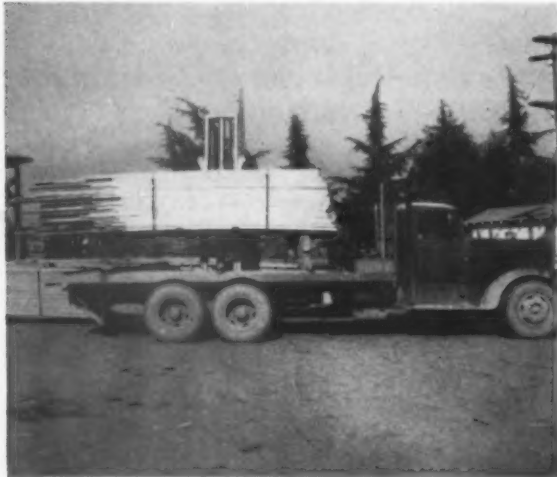


Eight Cartons Replace 28

Substitution of 28 varied styles of cartons by an eight-carton series of new design in one standard carton style, is recent achievement of Faultless Caster Co., Evansville, Ind. The new series has been found adequate for packaging 14 styles of casters and accessories in 41 sizes; caster weights range from 3 oz. to 3 lbs. per set. Reduction in number of cartons makes for quicker supplier service; simplifies packing; and provides better stacking and merchandising packages. Packages are sturdily designed. One of big advantages lies in easy product identification by illustration and item number, and brief description as to finish and size on both ends and two sides of package.

COST SAVING ITEM—383

Packaging and Shipping



Handling Costs Cut 70%

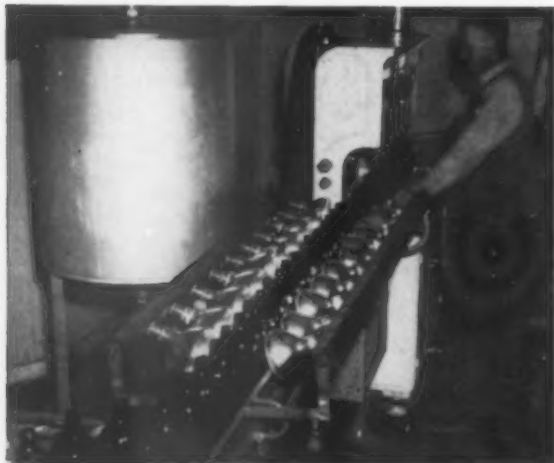
This load of lumber in yards of the West Fresno Lumber Company, Fresno, Calif., is rigidly bound with steel strap, simplifying loading and unloading of trucks. Fork trucks easily handle the loads for storage and shipping. A 70% saving in handling costs is reported.

COST SAVING ITEM—384

75% Time Saving With New Tape Strapping

Use of new gummed tape strapping by Zenith Radio's export packaging division, is reported to have cut packaging time three minutes per carton, and eliminate time of one man. Previous method took two men four minutes. The strapping is gummed and hence is glued to the carton. Featured by reinforcing fibres, the tape is said to have a tensile strength of 180 pounds for each inch of width.

COST SAVING ITEM—385



Unique Bottling Line Reduces Breakage, Cuts Costs

This unusual conveyorized bottling line with infrared section for preheating cold bottles, is new feature in plant of V. Tenedine & Sons, Inc., North Haven, Conn. Apple juice production on this line has runs of more than 5,000 gallons a day. Not only has bottle breakage been almost eliminated, but it is reported that labor costs are less than half of what they were before the installation. Cold, empty bottles are preheated in the infra-red section on their way to filling section. Compared with previous requirements, amount of cooling water has been cut some two-thirds.

COST SAVING ITEM—386

Packaging and Shipping



New Container Cuts Packing Time

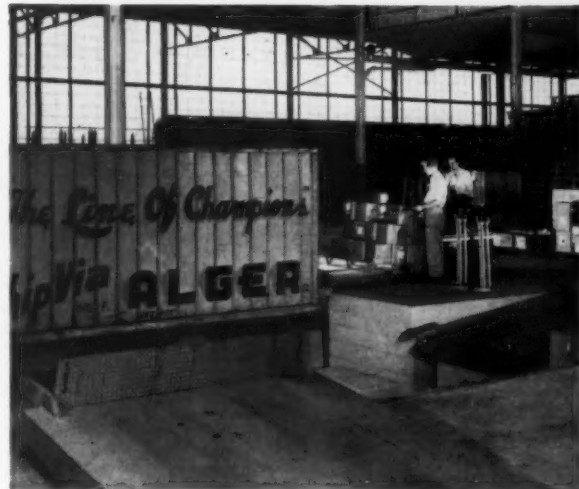
Special corrugated shipping box for fluorescent light fixtures developed for the F. W. Wakefield Brass Co., Vermilion, Ohio, engineered to afford increased protection, simplifies packing operation and is said to cut packing time to approximately 70 seconds per unit. It measures 53" x 13½" x 7½" to accommodate standard size 2-lamp fixtures. Die-cut, scored corrugated liners are used to brace fixture top, bottom, sides and ends. Loose sub-assemblies are packed in separate corrugated box which fits snugly in the shipper.

COST SAVING ITEM—387

Unloading Time Cut 50%

Installation of automatic levelling docks at truck wells of Harry Ferguson, Inc., Detroit, Mich., has resulted in big saving in time of unloading heavy materials such as engines, rear axles and transmissions. Saving averages 40% to 50% of time normally required. Docks have eliminated hazards of using plate between truck and dock. The company states that in many instances it has proved more efficient to haul materials more than 300 ft. inside the building, in order to unload a truck at the automatic levelling dock, even though this long haul could be avoided by unloading at truck wells not so equipped.

COST SAVING ITEM—388



Stapler Saves 25% on Shipping Container Job

A furniture manufacturer designed his shipping container so that it can be sealed with a stapling machine which applies and closes the staple entirely from outside the work. Cost savings thus made possible are placed at 25%. Furthermore, this manufacturer states the stapling results in more dependable sealing and a more attractive shipping container after the sealing job is done.

COST SAVING ITEM—389

Packaging and Shipping



Unpacker Cuts Cost Approximately 65%

Illustration shows automatic case unpacker which was recently put into service at plant of large brewing company, completing the mechanization of one of three bottling lines. The machine automatically removes bottles or other containers from uniform cases, trays and cartons. At present the unpacker is being used to remove export bottles from 2-flap fiber cases. Labor cost savings are estimated at two-thirds of the cost of manual handling. Here the loaded cases are on way to unpacker.

COST SAVING ITEM—390

Prevents Breakage; Saves Shipping Weight

Carton packaging of construction items, particularly steel-framed screens presented a problem for Ceco Steel Products Corp., Chicago. Paper taped containers frequently broke open in transit resulting in damage. By adoption of new type industrial tape for sealing and banding outgoing cartons, breakage was minimized. Tape has unusual tensile strength, high tearing resistance, and is waterproof, and imparts extra rigidity to cardboard cartons.

COST SAVING ITEM—391



Postal Meters Improve Shipping

Greatly improved efficiency in handling outgoing parcel post shipments and protection against postage losses by theft, mark installation of metered mail machine and recessed parcel post scale in shipping department of Hickok Manufacturing Co., Inc., Rochester, N. Y. The meter machine eliminates necessity for running inventory of stamps. Hickok company states that with the handling of some 1000 packages and postage of \$900. per day, the semi-automatic postal meter for fast dispensing of stamps according to zone rates is the answer to efficiency in this type of shipping, by selecting the denominations with key levers, and ejecting stamps printed, moistened, and cut-off ready for use in one operation. The recessed scale simplifies weighing of packages.

COST SAVING ITEM—392

Packaging and Shipping



Container Costs and Packing Time Drastically Cut

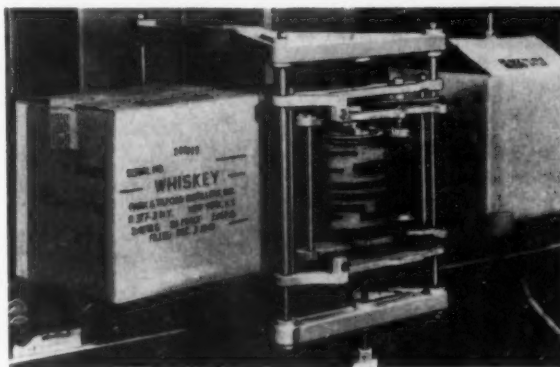
Reduction of 60% in container costs and 80% in packing time were reported by the H. C. Smith Oil Tool Co., Compton, Calif., through the adoption of especially engineered wirebound boxes to carry its roller bearing rock bits, ranging in size from $3\frac{1}{8}$ " to $12\frac{1}{4}$ ". An example of the packaging is illustrated. Time of packing the 87-pound rock bit has been reduced to about 10% of former packing time. Shipping damage which previously ran as high as 50% is now practically nil.

COST SAVING ITEM — 393

Automatic Stenciller Does Work of 24 Men

Automatic stencilling machines installed on each of 12 filling lines in Bottling Division, Park & Tilford Distillers, Inc., now replace 24 men formerly engaged in hand stencilling of two sides of filled shipping containers. Under the system previously used two men did the stencilling by hand, one on each side of the 12 filling lines.

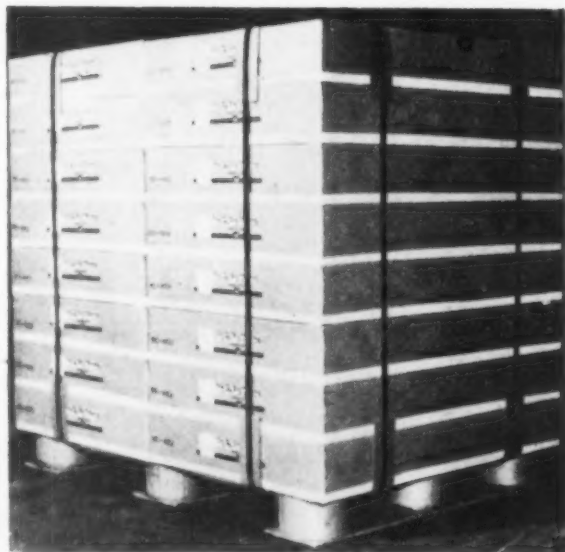
COST SAVING ITEM — 394



Expendable Pallets Cut Shipping Costs

Large paper mill reports experience with expendable pallets for shipping carload of printing paper from Kingsport, Tenn., to Cincinnati, O., comparing cost with that of 220 lb. returnable wooden skid and dunnage. Since pallet plus lid and dunnage weighed 60 lbs. as against 220 lbs. for wooden skid, a saving of \$1.28 per unit load was obtained; freight saving on 16 unit loads, \$20.49. The total expenditure for one-trip pallet, including \$0.48 outbound charge was \$2.48. The total for one-trip skid, including outbound charge of \$1.76, was \$9.76. Total outbound saving per unit load using expendable corrugated fibreboard pallet was \$7.28. In addition, LCL rate for return of skid is \$3.10. Expendable pallet need not be returned.

COST SAVING ITEM — 395



Packaging and Shipping



Package Strapping Increased 300%

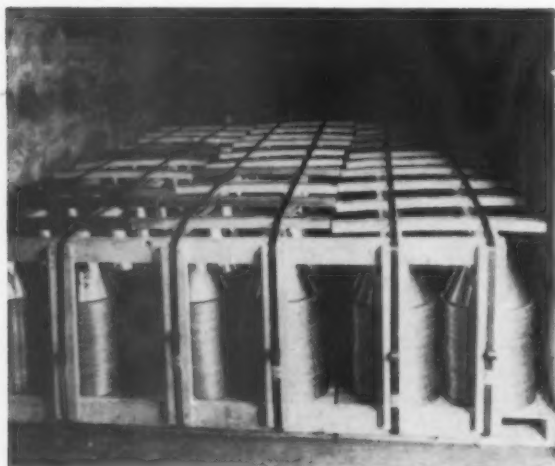
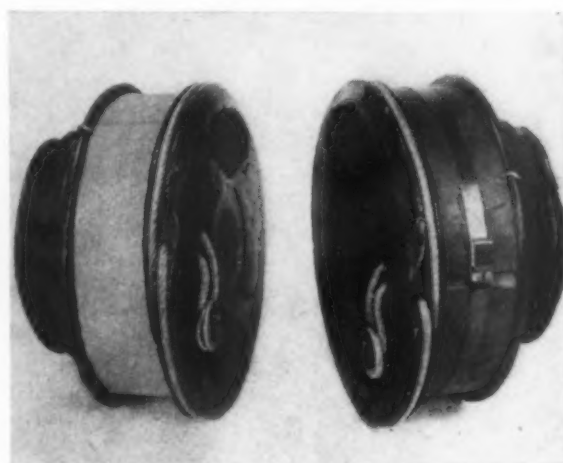
Four units of a bed made by the Seng Company, Chicago, are placed between filler strips in a corrugated fibre container, the top being attached by means of wire stitching machine. Under methods previously used, package sealing was at the rate of ten packages per hour. With the aid of steel strapping tool, operators now tension and seal the bands at the rate of 40 per hour.

COST SAVING ITEM — 396

Time and Materials Saving 17¢ per Pulley

It takes an average of half a minute to tape-strap the cable wound pulley illustrated, at plant of the McKee Door Manufacturing Co., Aurora, Ill., compared with packaging method formerly used. Saving of time and materials is placed at 17¢ per pulley.

COST SAVING ITEM — 397



Protects Cones; Saves Unloading Time

The accompanying picture shows how television cones made by the Milwaukee Spinning Company are duly protected in transit; further, car unloading time under normal conditions has been reduced to 1½ man hours. The old way of using wood braces required 18 man hours for unloading. The metal cones are strapped to pallets. Gate is placed at end of grouped pallets, and these are bound with flat bands to form a "floating unit."

COST SAVING ITEM — 398

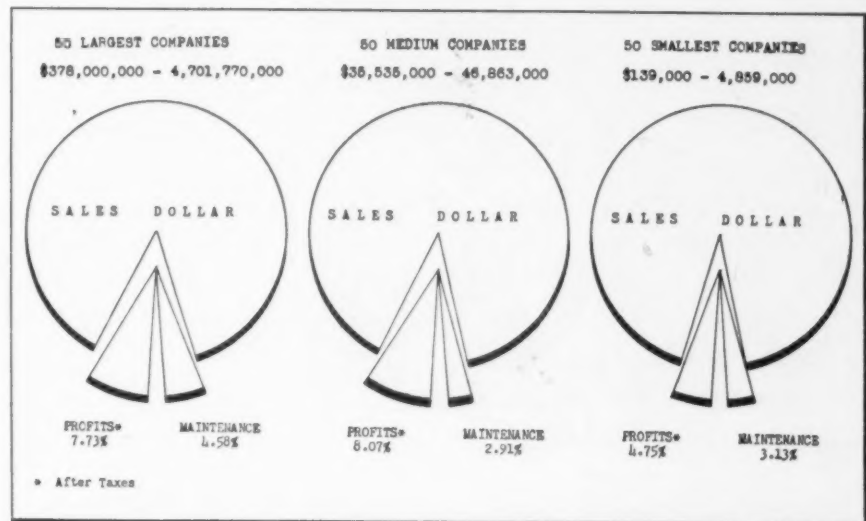
Maintenance Proffers Fertile Field for Operating and Production Economies

THE significance and importance of plant maintenance can hardly be overestimated. Maintenance is broad in scope, for it covers operating, production and repairs. Maintenance charges in various industries vary considerably due to the character of the operation, company policies, and type of organization for maintenance. Authorities state that on an average, maintenance exacts five cents or more out of the sales dollar. In a few cases, maintenance costs take as much as 25% of the sales dollar.

Its relative importance to overall operations is also reflected in a statement made by a speaker at the First Plant Maintenance Conference recently held in Cleveland, to the effect that 15% of 935 companies whose operations had been the subject of careful analysis, expended more on maintenance costs than they earned in net profits after taxes during 1948. The largest of these companies spent for maintenance an amount equal to 60% of net profits.

Broadly, plant maintenance, or preventive maintenance as it is generally termed, involves the responsibility of keeping a plant running smoothly, looking to the avoidance of production delays and machine or departmental shutdowns, keeping machines and equipment in good repair and properly lubricated, and good plant housekeeping. All these things are essential if production is to meet its responsibility of delivering on schedule, and manufacture at costs which permit a company to operate at a profit.

In maintenance, as in no other plant operation, the old adage that an ounce of prevention is worth a pound of cure, is drastically demonstrated all too often. Slow-downs and shut-downs are costly, aside from the trials and tribula-



Net Profit (after taxes) and maintenance as percentage of net sales, 1948, in 150 companies selected from 935 analyzed, based on dollar volume of net sales. (From study on "What Does Maintenance Cost" by J. E. Sutherland, vice president, MacDonald Bros., Inc., Detroit, in proceedings of The First Plant Maintenance Conference which was held in Cleveland.)

Plant operation, production, equipment repairs and housekeeping come under mantle of maintenance

Modern equipment, tools, supplies and accessories make highly profitable replacements possible

Striking maintenance and production savings made by utilizing modern methods and systems

tions incident thereto. Continuous, low cost production is dependent upon timely repairs, replacements and overhauls, and replacing obsolete parts and devices with the new materials, units and technical developments that provide better and more dependable operation.

Aside from such major factors as uninterrupted operation and minimum production costs, it is estimated that by properly supervised, systematic maintenance, direct labor maintenance costs in many plants can be reduced as much as 30%. In addition there must also be taken into consideration the very

substantial savings earned by the employment of modern tools and methods that are adapted to maintenance problems. Also involved is the purchase of new parts, equipment and devices that simplify operations and controls, thus eliminating costly old fashioned procedures, and solving not only maintenance problems but production problems.

Numerous such instances are reported in the following pages which carry some unusually interesting case histories of savings earned by the purchase of new parts and equipment in the course of plant maintenance.

Maintenance



Mechanical Sweepers Save \$11,900 Annually

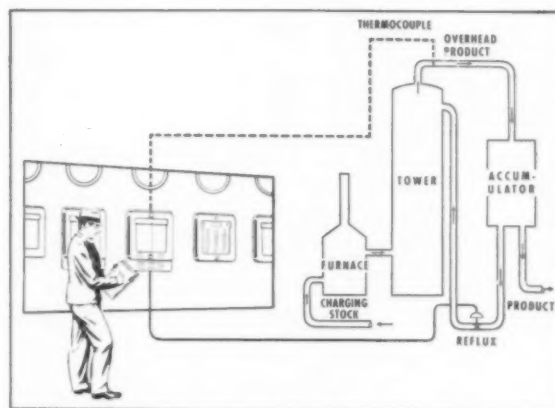
Daily sweep-up in plant of large manufacturer of electrical products was being done manually by crew of ten men equipped with pushbrooms and collecting barrels. Study showed that 80 man-hours per day were required to sweep four floors of one department. Five motorless industrial sweepers were purchased at a total cost of \$760. These units made it possible to do the sweeping and collecting in one operation at the rate of 22,000 square feet per hour per unit, as opposed to 3,000 square feet per hour for a push broom. By re-assigning the work, five men equipped with the mechanical sweepers were able to do the work of ten, and five men were transferred to other work. Sweeping costs were reduced \$11,900 per year.

COST SAVING ITEM — 399

Controller Saves Refinery \$600 Per Hour

A bad upset hit fractionating unit at an Eastern refinery. Charging stock contained water, throwing refinery into an uproar for more than 10 hours. However, by varying reflux feed widely and accurately through rate-action regulation, the pneumatic controller handling tower top temperature kept the fractionator relatively stable. Overhead product was well within specs. Savings were estimated at over \$600 per hour—\$4800 for the one shift, the controller paying for itself several times over during the one shift. It was emphasized that with less sensitive control, all of the day's product would have run to "slop."

COST SAVING ITEM — 400



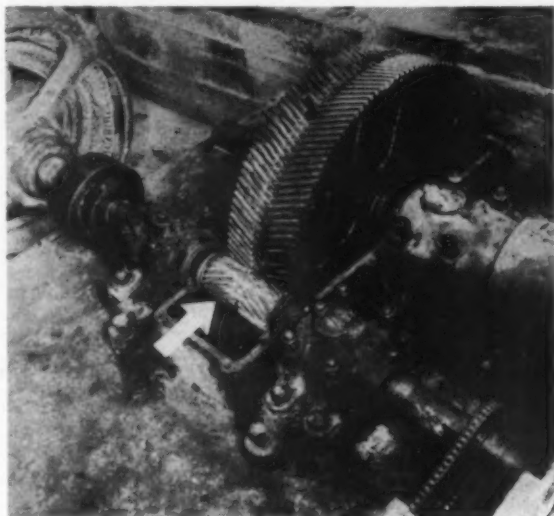
At Cost of 16c per Hour Band Saw Pays Big Dividends

The cost of 36" band saw in plant of The Whitney Blake Co., New Haven, Conn., is placed at 16¢ per hour including depreciation and interest, maintenance and repairs, blades and power cost, or $\frac{1}{8}$ the cost of operator. Saw is used for maintenance work, and for such jobs as cutting plywood, wallboard, etc. Slitting of heavy paper board takes an average of 3 minutes—ten times as fast as manual slitting. Slitting of ten of the paper rolls makes sufficient saving to repay the cost (interest and depreciation) plus all maintenance and repair allowances and costs for a year. Savings in general maintenance work are proportionate.

COST SAVING ITEM — 401



Maintenance



Welding Job Saves Long Plant Shutdown

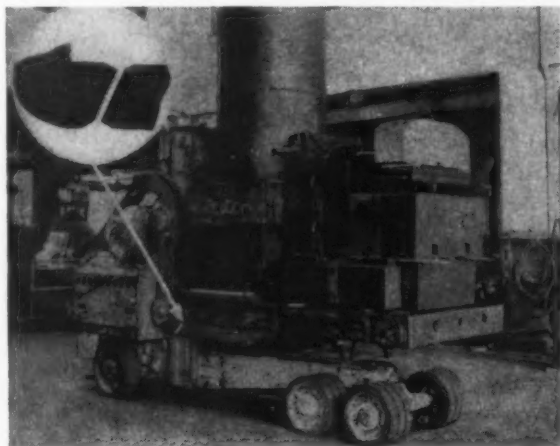
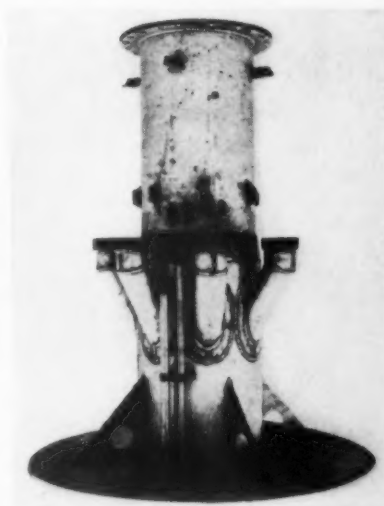
Tie-up in rubber production that would have cost thousands of dollars was avoided in Akron rubber plant by maintenance welding. A 150 hp motor drives 4 rubber mills through speed reduction gears. Ten-inch wide pinion broke a tooth, making further operation impossible. Thirty days' delivery was announced for new part. By means of bronze-chrome flux-coated rod and oxyacetylene torch, pinion was rebuilt, and new 16-tooth pinion recut. Mills were back in operation in less than three days at less than half the cost of part replacement.

COST SAVING ITEM — 402

Flare Tip Saved \$13,200

Up until 1946 a large midwestern refinery was paying \$2,200 in steeplejack labor charges to replace flare tip every six months, that being about the maximum life of tip materials then used. A nickel alloy tip was installed, and as a result tip replacement has been unnecessary. So far \$13,200 in steeplejack costs have been saved.

COST SAVING ITEM — 403



Truck Forks Repaired at 1/4 New Cost

Auto body stamping plant was using 50,000 electric fork truck for loads up to 125,000—150% overload. Arms are chrome molybdenum alloy steel castings, 13" wide, 3 1/2" thick and weigh 1750 pounds each. Arms which support platform were broken off at elbows. Cost of new arms was estimated at \$3000, 3 to 4 months delivery. It was decided to do welding job, 40 pounds of metal being deposited in each fracture. Truck is back in use, again handling overloads. Time out of service was one week; cost of repair job, including replacement of broken angle plates, was about \$800.

COST SAVING ITEM — 404

Maintenance



Spinning Time Increased 8%

Increase in production of average of 8% per frame, reduction in product spoilage, reduction in power consumption, and elimination of bearing failures are three of the outstanding results incident to installation of centralized lubricating system on 14 spinning frames, in plant of New Hampshire woolen company. The system provides completely automatic lubrication of 120 rings and travellers on each frame. Single lubricant supply line connects total of 1680 injectors to two pumps, so installed that one may supply all 14 frames if necessary,

COST SAVING ITEM — 405

Run Two Years Without Major Maintenance

Equipping two batteries of punch presses at Schenectady Works of General Electric Co., with centralized mass lubricating system, resulted in reduced press maintenance, longer die life, and far better use of manpower. Previously the presses required major overhaul after six months' service under manual lubrication. Same presses have functioned two years without reconditioning. Saving in machine production time, increased production, improved product quality and reduced lubricant consumption, feature the new system.

COST SAVING ITEM — 406

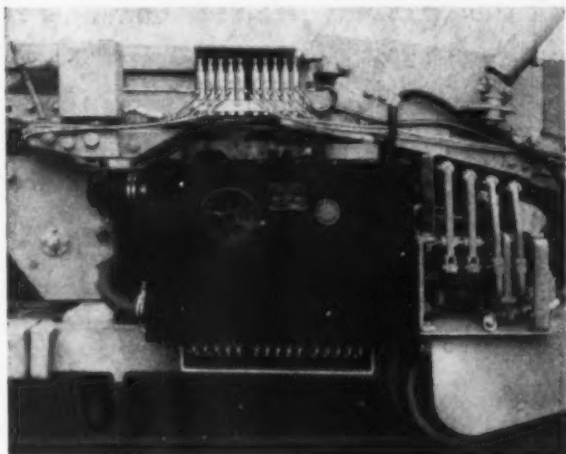


Shovel Downtime Eliminated

Five-yard electric power shovel used by the Alpha Cement Co., Lemay, Mo., with 78 lubricating points, was equipped with centralized lubricating system. Previously, lubricating job required minimum of one-half hour, losing one hour per eight-hour shift, and shovel trucks and primary crusher were idle. New system permits lubrication of all bearing points on shovel without downtime and within two minutes, permitting 12% increase in production rate of shovel and other equipment. System also effects lubricant savings, and shovel downtime formerly due to bearing repair and maintenance caused by inadequate lubrication is eliminated.

COST SAVING ITEM — 407

Maintenance



Excessive Maintenance Costs Reduced

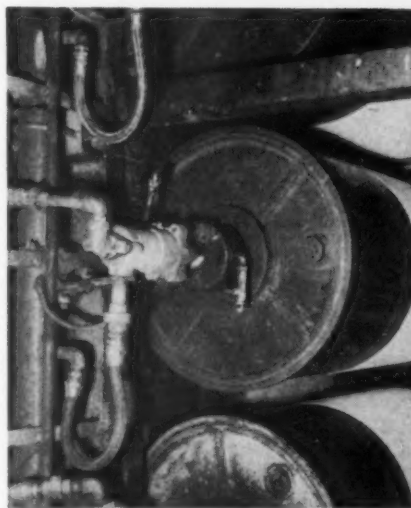
Illustration shows mid-section of automatic coal loader used by the Weirton Coal Co. at Isabella, Pa. It has 44 lubrication points. It is now equipped with a central lubricating system. When conveyor swings to the left a lubrication cycle is started and return to right completes it. Previously maintenance costs were excessive due to bearing failure caused by inadequate lubrication. All bearings are now lubricated simultaneously in two minutes. There has been no bearing failure since system was installed three years ago. Entry of coal dust is eliminated by sealed supply lines.

COST SAVING ITEM — 408

No Bearing Failures, Reduced Costs

The American Finishing Company previously found it necessary to lubricate bearings on drying cans and the main cylinder bearings of Sanforizing machines once every eight-hour shift. By the adoption of silicone grease the relubrication schedule has been cut to once every 30 to 45 shifts. In addition the plant engineer reports he has not had a single bearing failure in the 30 months the silicone oils and greases have been used. *(Photo courtesy of American Finishing Company.)*

COST SAVING ITEM — 409

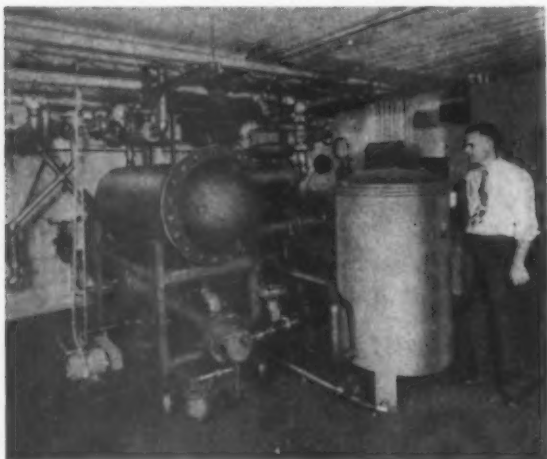


Boil-overs Eliminated

In the Utica plant of Central New York Power Corporation, tar, a by-product, is produced by evaporating a water emulsion of tar. In the course of the evaporation process, the engineers were faced with troublesome boil-overs day-after-day. By dropping a one-ounce gelatin capsule of silicone antifoam compound into the 5,000 gallon tar pot the boil-overs were eliminated completely, thus eliminating unnecessary production and operating costs. *(Photo courtesy of Central New York Power Corporation.)*

COST SAVING ITEM — 410

Maintenance



Oil Purifiers save \$6,355 Annually

Cleansing of quench oil by pre-coat filtering units consisting of frames and screens with diatomaceous earth as the filtering medium at plant of Cleveland Graphite Bronze Co., Cleveland, O., was unsatisfactory and overall cost including quench oil was \$237.60 for 4-week period, 3 complete stations. By installation of modern purifiers, cost for four-week period was reduced to \$74.64, or a saving per casting line of \$162.96; total saving for 3 casting lines \$488.88, or yearly saving (13 four-week periods) of \$6,355.44. Cost of 3 purifiers was \$4,620. No quench oil was discarded during 18 months period. Make-up oil only has been added at rate of about one barrel per line per month.

COST SAVING ITEM — 411

Fuel Savings Average 29%

Large manufacturing company located on the Eastern Seaboard cut fuel costs an average of 29% by the installation of modern unit heaters, in addition to creating more satisfactory working conditions in plant.

COST SAVING ITEM — 412

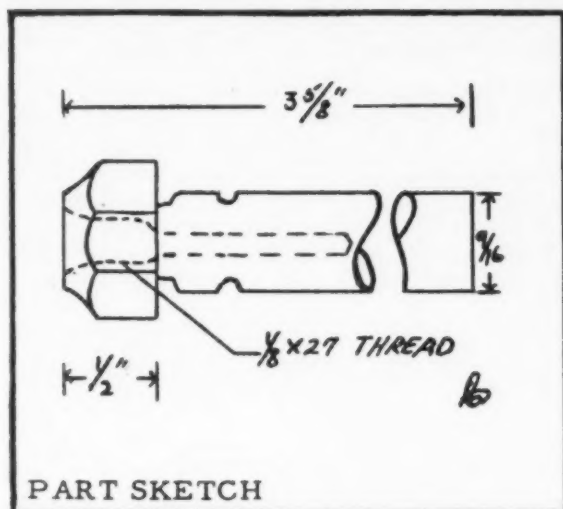


Scouring Operations Increased 400%

A large dairy company was faced with shortage of milk cans; sought to relieve shortage by reclamation and retinning. It was found that many cans could be salvaged without retinning if rust were thoroughly removed. Handscouring proved tedious and inefficient. A power-driven brush was mounted on an open arbor. It consisted of stiff, long-wearing fibre mixture permanently anchored in a continuous strip of steel backing and close-wound to form a dense brush 8½" in diameter. It speeded up scouring operations 400%. Savings in brush costs alone amounts to 20%. More than 2000 cans a month are thus scoured.

COST SAVING ITEM — 413

Maintenance



Cutting Fluid Saves \$50 Per Day Per Machine

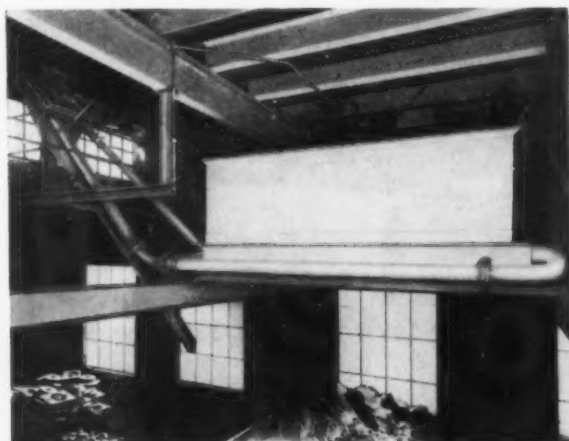
A major screw machine products company included study of cutting fluids in economy program. In one instance, through selection of proper cutting fluid for machining of shackle bolt head from AISI C 1030 steel, the production per tool grind was increased from 48 pieces to 320 pieces per hour. For every 320 pieces, proper cutting fluid application showed a saving of \$10.56 in tap breakage alone. During a 16 hour period saving in downtime amounted to \$17.96. The total savings recorded in tools and downtime amounted to an estimated \$50. per day per machine. These savings were exclusive of the obvious savings in increased production and decreased scrap loss.

COST SAVING ITEM — 414

Powder Cutting Solves Scrapping Problem

Powder-cutting solved problem scrapping of these large cast iron wheels, 10' 6" in diameter, weighing about five tons each, at Bates Expanded Metal Co., East Chicago, Ind. At thickest section, rims of wheels were 13" thick. Cutting blowpipe equipped with powder adaptor made cut in 12 minutes.

COST SAVING ITEM — 415

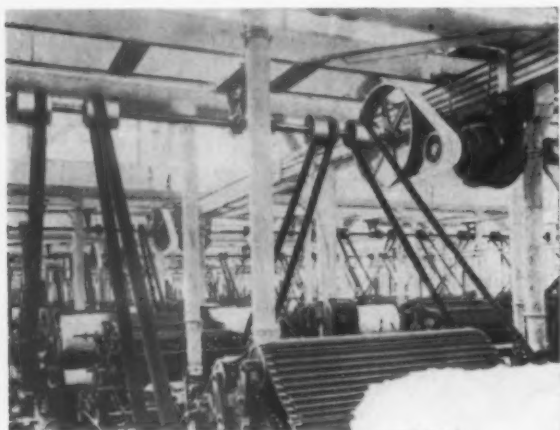


Sludge Removal Saving \$1,092 Annually

Illustration shows installation of conveyor in system for removal of sludge from dust collectors in plant of the Minneapolis Electric Steel Castings Co., Minneapolis. System includes two dust collectors to collect dust from shake-out hood, 2 dry sand tanks, 2 dry sand elevators, hammer screen and the belt conveyor which deposits sludge in tank 9'10" long by 5' wide. Tube-enclosed endless chain with neoprene flights passes through bottom of settling tank, withdrawing sludge which is deposited into spout for disposal outside the building. The system moves 8 cu. ft. of sludge per hour at an annual saving of \$1,092 over previous manual methods.

COST SAVING ITEM — 416

Maintenance



Maintenance Cut \$100 a Week

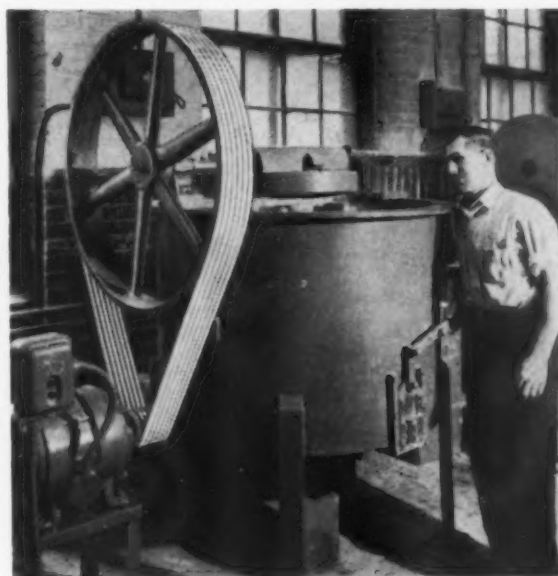
Cards in Oklahoma Textile Mill are driven in groups of 18 from overhead lineshafts. Previously, when drive units became worn they pounded out the motor bearings. Maintenance and down time were costing \$100 a week. Three years ago the card room was equipped with rope drives. The only maintenance since then has been an occasional tightening of the belts, though drives have been operated on 24-hour schedule. Down time has been eliminated.

COST SAVING ITEM — 417

Mixer Maintenance Reduced \$125 Annually

This mixer, formerly gear driven, used in the manufacture of caulking compound at the Calbar Paint and Varnish Co., Philadelphia, was costing over \$125 annually for pinion replacement and motor repairs. Grooved sheeves were put on both motor and mixer shafts, and rope drives installed. The maintenance engineer reports new drive has been trouble-free and saves \$125. a year in maintenance. Furthermore, ten more machines have been so equipped.

COST SAVING ITEM — 418

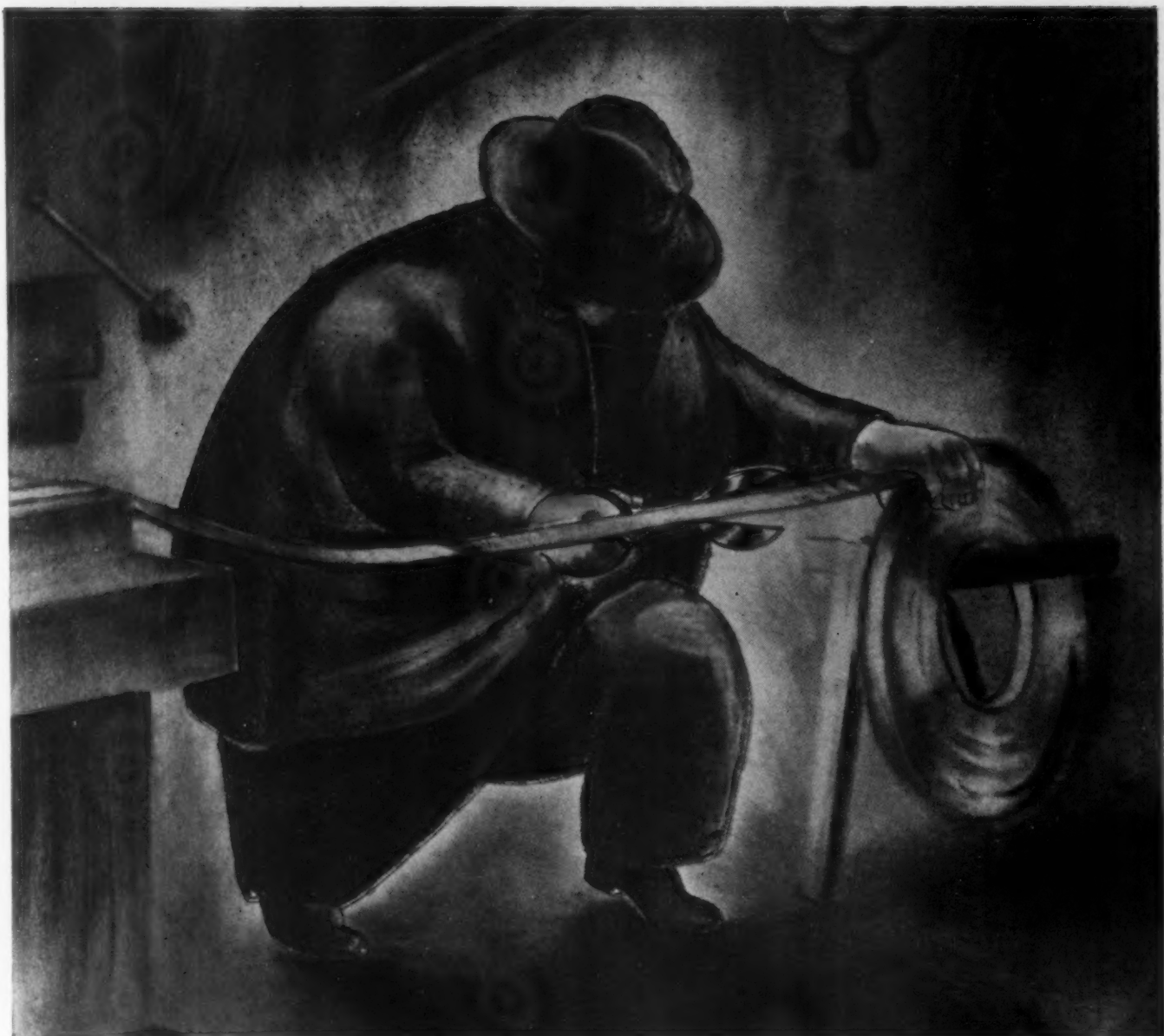


Dust Control Saves \$58 Daily in Salvaged Chemicals

National Aluminate Company of Chicago uses five cloth screen dust collectors to salvage \$58 a day, \$14,859 a year—in chemicals. Furthermore, removal of the powdery chemical dust simplifies plant housekeeping costs, maintenance is easier and less costly, and repair bills have been cut. Employee morale is improved, and the dust collectors have proved important factors in the company's good neighbor program.

COST SAVING ITEM — 419





Don't let **OVERSIZE VARIATION** steal your steel

It's not "price per pound" that determines the cost of the flat-rolled steel you use in your product, but the cost per foot or per piece. When the strip thickness runs to the high side of the tolerance range, you get fewer feet per pound and, therefore, fewer units of production per ton. As a result, your steel costs go up. In effect, *oversize variation is a com-*

mercially acceptable, but none the less objectionable pickpocket—it steals your steel.

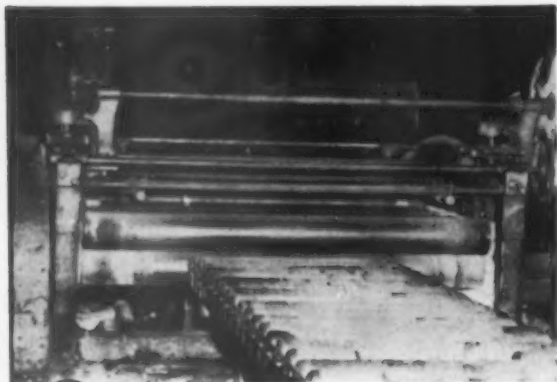
Beat oversize variation—specify **CMP Thinsteel**, the trade name identifying precision cold-rolled strip steel in low carbon, high carbon (annealed or tempered) and stainless grades. Thinsteel accuracy to gauge insures maximum yield per ton and offers a definite means of reducing cold-rolled strip steel costs to the minimum. Your inquiry is invited.



Cold Metal Products co.
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NEW YORK • CHICAGO • DETROIT • ST. LOUIS • INDIANAPOLIS • LOS ANGELES,

Maintenance



Repair Job Saves \$1,333.38 on Plate Leveller

Rolls for 74-in. plate leveller in steel mill because of comparative softness, picked up scale which pitmarked surface of plates. Cost of new rolls with 230-250 Brinell was \$1,750.67 with long-time delivery. Engineers decided on metal spraying of rolls with high carbon steel to correct the trouble. Rolls were re-surfaced with $\frac{1}{8}$ " to $\frac{3}{16}$ " sprayed steel. The scale pick-up difficulty was eliminated. The cost of spray job for eight rolls was \$417.29, labor and material. Compared with cost of new rolls, money saving was \$1,333.38.

COST SAVING ITEM — 420

Metal Spraying Saves \$99 on Repair Job

Main spindle of 14" x 36" cylindrical grinder in plant of Canadian machinery company showed deep scars, and .002 to .005 out of round. Cost of part was \$164. By means of metal spraying the spindle was put in A-1 condition in four days, at total expenditure of \$65 including reboring the sleeves and furnishing them with oil grooves. The assistant superintendent reports a saving of \$9500 over a period of eight months, by means of sprayed metal repairs throughout plant.

COST SAVING ITEM — 421

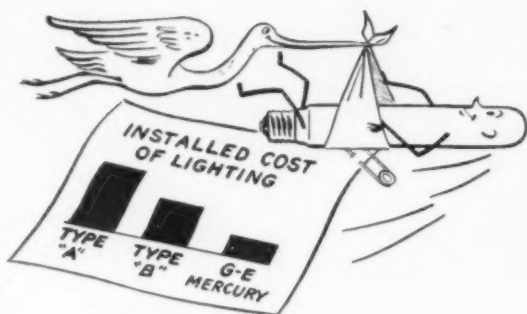


Metal-Spray Guns Save \$800 on First Job

Illustration shows 1500-ton press ram being metal spray repaired in plant of Isaacson Iron Works, Seattle, Wash. Originally of iron, the rams quickly scored due to severe service conditions under intense heat and high load stresses, resulting in rapid wear of expensive packing during a single shift. The rams are now repaired by metal spraying with stainless steel which increases their service life. Figuring shop time at \$5.00 per hour, it is estimated that \$800. is saved on each repair job over the cost of a new cast iron ram.

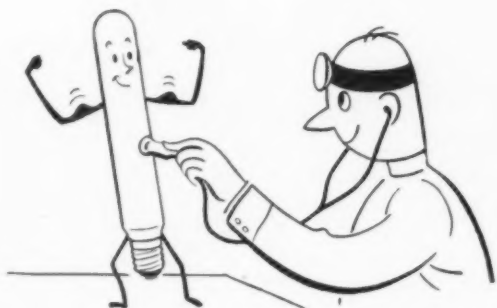
COST SAVING ITSM — 422

Why lighting costs can be cut with General Electric mercury lamps



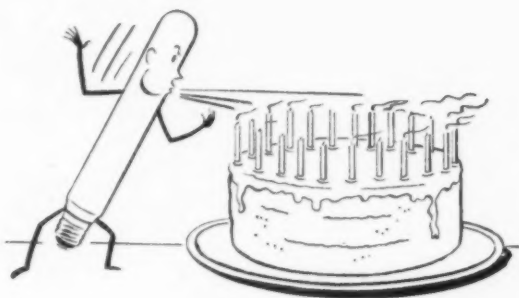
1. Low first cost!

In hundreds of plants, General Electric mercury lamps are giving efficient, dependable lighting. And at the lowest over-all cost of light. With G-E mercury lamps, initial cost is low. You save on equipment outlay, because only a relatively small number of lamps and fixtures are needed.



2. Low maintenance cost!

The mercury lamps commonly used in industry have exceptionally high light output. That keeps maintenance costs at a minimum because you have fewer lamps and fixtures to clean, fewer transformers to check, simpler wiring. You keep your lighting at top performance with the least amount of trouble—and at low cost.



3. Long life!

Your replacement costs are low. General Electric mercury lamps last a long time—up to 10,000 hours, depending on lamp type and operating conditions. Few replacements, plus low initial and maintenance costs, make mercury lamps the lowest-cost type of lighting you can buy. When you decide to re-light your factories, be sure to consider General Electric mercury lamps.



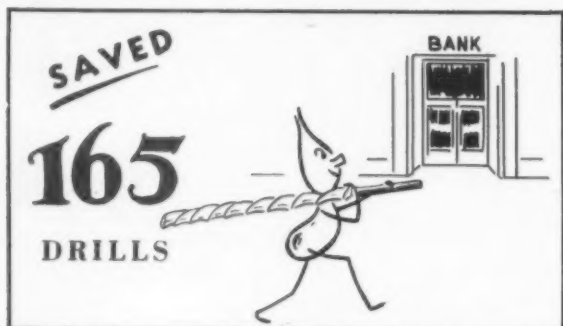
FREE BOOKLET. For more data on General Electric mercury lamps, write for "General Electric Mercury Lamps in Industry". It gives complete engineering data, recommended applications. General Electric Company, Lamp Department, Div. 166-P6, Nela Park, Cleveland 12, Ohio.



You can put your confidence in—

GENERAL  ELECTRIC

Maintenance



New Coolant Saves 165 Drills

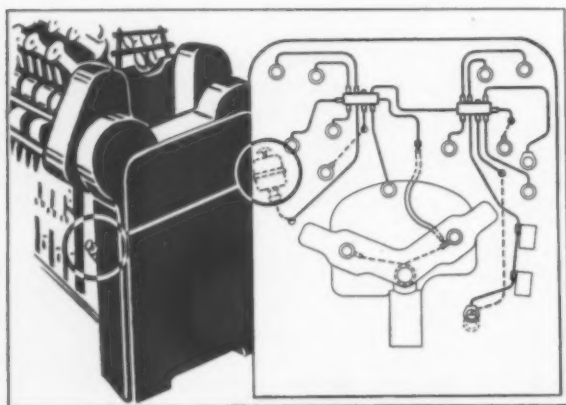
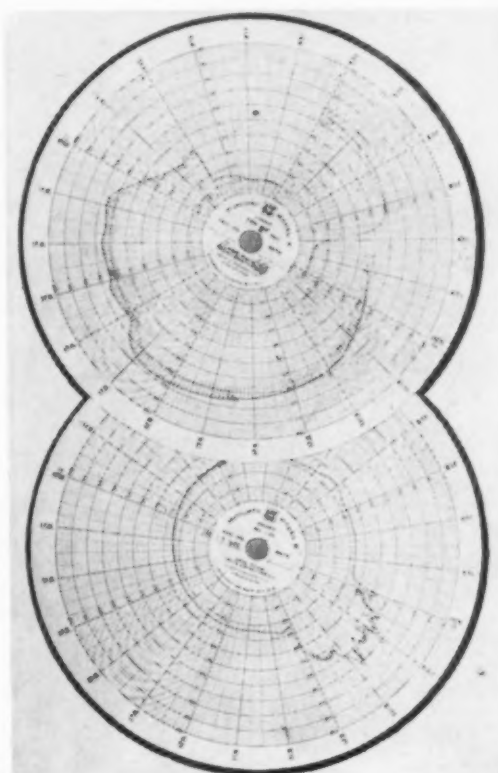
Manufacturer drilling 2-11/16" holes in connecting rod cap of SAE 1035 steel forging, was using 170 drills in 50 hours' work employing soluble oil. With new special coolant only five drills were used for the same production with better finish.

COST SAVING ITEM — 423

Valve Life Tripled

During three-hour period, plug valves in finishing plant handling hydrocarbon gases, operate in temperatures ranging from 500° to 700° C. In spite of grinding every three months, careful cleaning every 4 to 6 weeks, and lubrication 3 to 4 times daily, life of the valves was limited to one year. Lubrication department recommended a silicone valve lubricant. The valve life has been tripled, cleaning schedule has been reduced to once every 6 to 8 months, and indications are that less expensive valves and plugs can be used. (Photo courtesy of Dow Chemical Company.)

COST SAVING ITEM — 424



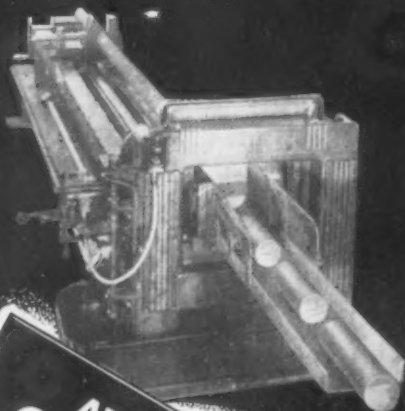
Oiling Time Reduced from 80 to Two Hours

The Mt. Vernon-Woodberry Mills of Tallassee, Ala., equipped 419 spinning frames and twisters with a "one-shot" lubrication system. This cut oiling time from 80 hours to two hours per week. As the system lubricates the machines while running this means 80 more hours for production instead of 80 hours wasted downtime. In addition, mill officials report a 33 to 50% saving of the oil formerly used. Moreover, the system has kept the machines running smoothly.

COST SAVING ITEM — 425

Now Cuts No. 347 Stainless

33 1/3% faster
using **ATKINS**
"Silver Steel" **BLADES**



ATKINS
Silver Steel
SAWS

● **CASE STUDY**

Material: 3/4" diam. bars of No. 347 type stainless steel.

Previous Cutting History: After 12 to 14 cuts molytype blades used became dull, with cutting time excessive. Varying machine speed, coolant and pressures did not help.

Recommendation: Change-over to Atkins High-Speed "Silver Steel" Blade No. 614P.

Result: Time per cut reduced from 15 to 10 minutes. Number of cuts per blade increased from maximum of 14 to new high of 32, with blade still satisfactory for lighter-duty work after 32 cuts.



This Performance Report Has a Moral for You:

If you have tough cutting jobs — or any job on which blade wear, cutting time and machine down time are excessive, investigate Atkins "Silver Steel" Blades. User reports consistently show that Atkins "Silver Steel" Hack Saw Blades can and do out-wear and out-cut ordinary blades — frequently by a wide margin. Put Atkins in your machines and check results. Tell your Atkins Distributor you want to make this test now!

See Your Industrial Distributor First

10 SECONDS TO CUT 2 1/2" ELECTRIC CAST STEEL



ATKINS
"Curled-Chip"
MILLING SAWS

Another example of Atkins "Curled-Chip" Milling Saws in action! Smooth "Curled-Chip"

cutting action allows faster cutting speeds, heavier feeds — cleaner, truer cuts that need less re-machining. Ask for a demonstration on your own work.



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Home Office and Factory: 402 S. Illinois Street, Indianapolis 9, Indiana

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MAKERS OF BETTER SAWS FOR EVERY CUTTING JOB

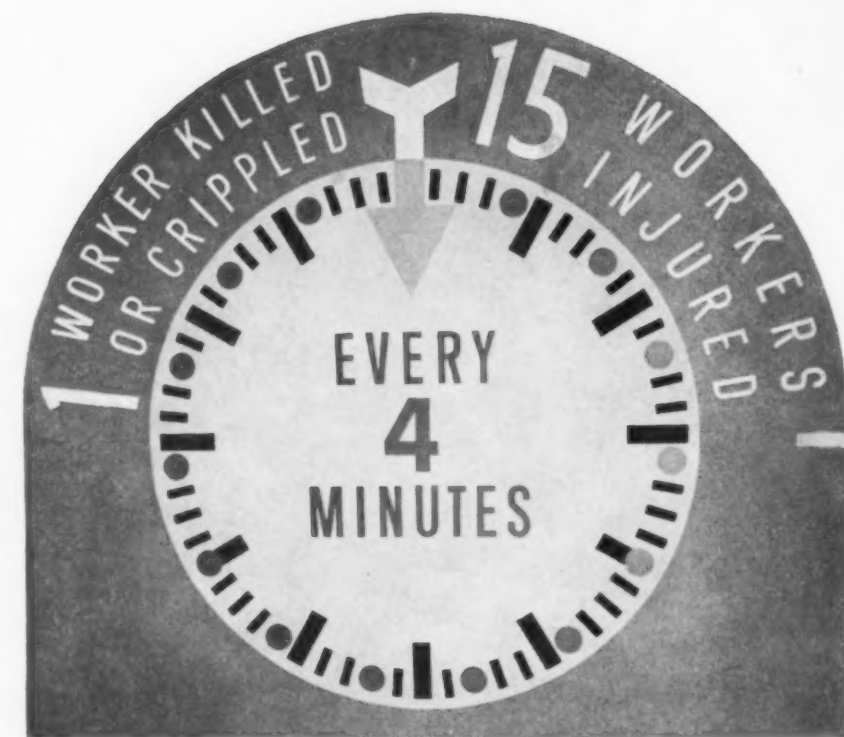
Safety Apparel and Equipment Pay Big Dividends

SAFETY pays, not only in human values, but also in dollar dividends. In a broad sense, it may be said that "safety-first" as an organized program in American Industry is relatively in its infancy, for the reason that but a comparatively few of the 250,000 manufacturing plants in this country have organized sustained safety programs.

It is practical to assume that ere the present year comes to an end, some 16,000 occupational fatalities will have occurred in industry, and that the number of disabling injuries will run close to 2,000,000, and of the latter approximately 75 to 80 thousand will involve some degree of permanent impairment, and the remainder will result in temporary disability of one day or more.

The foregoing figures are based on occupational accident records of previous years compiled by the National Safety Council, which states that in 1948 occupational injuries cost the nation approximately \$2,650,000. Of this amount, about \$1,350,000 represented the immediately visible costs to both workers and industry including wage loss, expense of medical care and overhead cost of compensation insurance. The remainder represents the value of damaged equipment and materials, production slowdowns, and time lost by other workers not involved in the accidents. The costs of occupational accidents to industry averaged nearly \$40. per worker, including both direct and indirect costs. It is estimated that the indirect cost is four times greater than the direct cost in many cases.

A study by a large midwestern manufacturing company which has a well organized first aid department, shows that what is termed the "cheapest" industrial accident—a foreign object in the eye removed by the first aid nurse, costs \$1.60. Small cuts on hands or fingers not serious enough to merit a doctor's care, cost an average of \$2.35. In these simple cases, if a doctor's care is required the cost averaged \$16.29



Occupational injuries now approximate 2,000,000 annually, with 16,000 fatalities

National cost is more than \$2,500,000,000 in direct and indirect costs, or \$40. per worker

Keys to accident prevention are mechanical safeguards, safety apparel and good housekeeping

and \$17.83 despectively. In event of infection the cost may be doubled.

These are not "lost time" cases, within the definition of computing industrial injury rates, for in most cases the worker did not leave his job. The costs include the time lost while the injured person was receiving treatment, departmental overhead per worker, administrative costs, and the cost of services and supplies for the treatment administered. This experience indicates that minor injuries which approximate 85% or more of all injury cases, are quite costly.

Mechanical safeguards, safety

clothing from head to foot—according to hazards and requirements, employee education and good housekeeping are the important keys to accident prevention. Hence the need for sound regulations governing the use by workers of safety goggles, shoes, helmets, welding masks, face masks, respirators, gloves, overall suits, aprons or leggings, and providing safeguards against dermatitis. The need for employee education is reflected in recent statistics which show that 42% of disabilities are due either to unnecessary exposure to danger or to improper use of equipment.



Here's a pretty kettle of fish

SURVEYS reveal an appalling misunderstanding among young people of the "facts of business life". For example, a poll was made among seniors in certain high schools which showed that they believe business profits are "over 50%", where actually profits average less than 8%.

They think that stockholders receive 24% on their investments, where actually it runs less than 3%.

Isn't this a pretty kettle of fish?

Such ignorance is alarming. It is unfair to the young people themselves and dan-

gerous to America's future. Such misconceptions open the door to socialism, communism and all the fantasies of the hand-out or "something-for-nothing" state.

Our school teachers say they *want* authentic information on the business system and how it works. Only business itself can supply the facts. You as a business leader in your community must share the responsibility for this misunderstanding. It is our civic duty to help overcome this misconception of everyday economics in the minds of our youth today.



The Youngstown Sheet and Tube Company

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MANUFACTURERS OF CARBON ALLOY AND YOLOY STEELS

ELECTROLYTIC TIN PLATE - COKE TIN PLATE - WIRE - COLD FINISHED CARBON AND ALLOY BARS - PIPE AND TUBULAR PRODUCTS - CONDUIT - RODS - SHEETS - PLATES - BARS - RAILROAD TRACK SPIKES.

Safety



Hand Injuries Reduced 78%

The Reeves Steel & Manufacturing Co., Dover, Ohio, by supplying its 100 workers with neoprene and rubber-coated work gloves, reports a reduction of 78% in infections and hand injuries. The company manufactures metalware specialties from sheet steel, and neoprene coated, knit-wrist work gloves keep injuries at a minimum. Likewise workers handling acids in concentrated form or in solution are protected against burns and hand irritations by gloves of the knit-wrist and gauntlet type.

COST SAVING ITEM — 426

Eye Protection Savings Approximate \$15,000

In Texas, one of the leading makers of tools for oil well drilling has made savings of \$12,000 in compensation alone, plus about \$3,000 in medical and hospital expenses, by the introduction of a vision conservation program. This reduction in accident rate was achieved by checking all employees for visual difficulties, aiding them to obtain correction, and then making sure that employees who were subject to eye hazards had the proper protection.

COST SAVING ITEM — 427



Palm Coated Safety Gloves More Economical

Records showed that 10-oz. knit wrist style canvas gloves gave only 24 man-hours service at plant of the Inks Tile and Supply Co., Fremont, Ohio. In the course of testing various gloves, the workers voiced preference for a short gauntlet or "safety cuff" style glove coated on palm surface only with rough finish natural latex rubber. At a cost approximately $2\frac{1}{2}$ times that of the gloves previously used, the gloves were still serviceable after 24 eight-hour shifts, a wear ratio of eight to one, or a fraction of one cent per man-hour. In handling finished tile, the selected gloves outwore the conventional 10-ounce canvas gloves 12 to one.

COST SAVING ITEM — 428



SEAL DIRT OUT - GREASE IN

BALL IN THE TOP



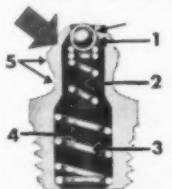
Lincoln
BULLNECK*
Kleenseal*
LUBRICATING EQUIPMENT
GREASE FITTINGS

**PROTECT BEARINGS
REDUCE MAINTENANCE**

All these exclusive advantages at no extra cost ... Lincoln Kleenseal* Bullneck Fittings provide positive bearing protection because the surface Ball-Check in the fitting head, flush with the contact opening, prevents dirt and grit from entering the bearing. They are designed to permit contact by all commercial hydraulic couplers. Kleenseal Bullneck fittings admit more lubricant flow with less pressure than any other hydraulic or push type fitting. They permit standardization on one all-purpose type fitting without making obsolete any present couplers or grease guns.



Old Style Open Throat



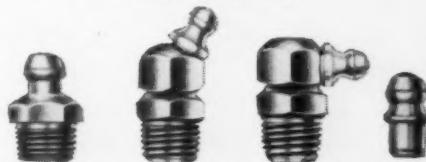
Bullneck Sealed Throat

*Trademark Registered

CONSTRUCTION FEATURES

1. **Flush Ball Check** — Head can be wiped clean without forcing dirt into fitting and into bearing.
2. **Large Grease Passage** — The larger internal diameter permits greater flow of lubricant.
3. **Special Spring Design** — Spring cannot be compressed to restrict flow of the heaviest lubricants.
4. **Greater Flow** — Less Resistance — The larger internal area requires less pressure to clear the fitting.
5. **Sturdier Construction** — Enlarged neck size and projecting locking pad protect against damage and wear.

Standardize on the Modern Fitting with the
BALL IN THE TOP



Kleenseal Bullneck Fittings Are Available in the Complete Range of Types and Thread Sizes. Write for Bulletin 708-1 (Actual Size Drawings)

... PIONEER BUILDERS

LINCOLN

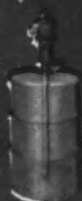
LUBRICATING EQUIPMENT ...

LINCOLN ENGINEERING COMPANY

5783 Natural Bridge Ave., St. Louis 20, Mo.



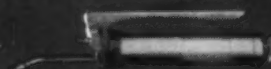
HEAVY DUTY
POWER
OPERATED
DRUM PUMPS



BUCKET
PUMPS



HAND GUNS



CENTRALIZED
SYSTEMS



Distributed Nationally by Leading Industrial Distributors

Safety



Safety Shoes Eliminate Lost-Time Foot Accidents

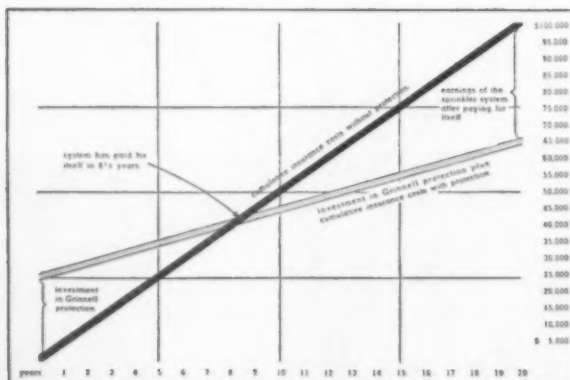
Several years ago, a Pennsylvania steel company reports, it was common for 35 to 50% of the company's lost-time accidents to be due to toe injuries and 25% of these involved the great toe. A concentrated drive was made toward getting more employees to wear safety shoes. As a result of this campaign there has been an unbroken record of 25 months with no lost-time accidents on account of foot injuries.

COST SAVING ITEM — 429

Minor Eye Accidents Costly

A large Midwestern company which maintains well organized first aid facilities, reports that in the very "cheapest" accident—a foreign body in the eye, the cost of removing the object from the eye by a first aid nurse, runs to \$1.60, and if the case requires doctor's care, the cost averages \$16.29. These are usually cases where the worker went to the first aid room, received treatment, and returned to the job. The cost factors are: production time lost, department overhead cost per worker; and, administrative costs. More important, of course, are accidents involving serious eye injury, human suffering and possible irreparable physical damage, as well as high financial losses, all of which can usually be avoided by adequate eye protection in hazardous work.

COST SAVING ITEM — 430



Sprinkler System Saves \$3,000 Annually

Reduction of fire insurance premium from \$5,000 annually to \$2,000 annually, resulting in annual saving of \$3,000 in insurance costs, accrued to large manufacturer who installed automatic sprinkler system at cost of \$25,000. On the basis of the saving in insurance, the system paid for itself in 8 1/3 years, and every year thereafter earned \$3,000.

COST SAVING ITEM — 431

*your Spang
CW
distributor
believes...*

That good service pays



Your Spang CW Pipe Distributor makes your problems his when you call him. He knows that good, quick service means satisfied, lasting customers. And he's more than willing to go out of his way to see that you get prompt, efficient service in emergencies.

He also knows that it pays to handle products of fine quality. That's why he stocks and recommends Spang CW Pipe. He knows that Spang CW gives long, trouble-free service. One of the reasons why this is true is because of the final finishing and descaling operations in its manufacture. This assures a smooth, scale-free inside surface that minimizes dangerous and costly valve clogging.

For dependable, quick service call your Spang CW Pipe Distributor the next time you need steel pipe, fittings, fixtures, valves or other piping materials. You'll like his philosophy . . . good service pays.

SPANG - CHALFANT

Division of The National Supply Company
EXECUTIVE OFFICES: PITTSBURGH, PA.
District Sales Offices: Atlanta; Boston; Detroit; Houston;
Los Angeles; New York; Philadelphia; Pittsburgh; St. Louis

**SPANG
CW**

QUALITY

*that is
recognized
wherever pipe
is used*

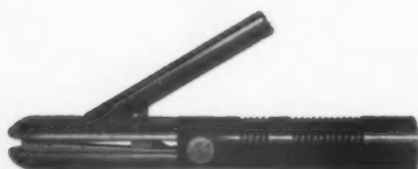


New Products Ideas



If you want more information on New Products items, just list the item numbers in a letter to Purchasing Reader-Service Department on your company letterhead. This also applies to Catalogs and Bulletins described on Pages 19, 20, 22, 24 and 254. See Page 19.

Electrode Holder



A 500-amp electrode holder of the blade type, known as the ET-5, taking $\frac{3}{8}$ " electrodes, is being made by Jackson Products, Warren, Mich. The blade-type spring steel jaws are $\frac{7}{8}$ " wide and grooved to hold rods at 4 different angles, in either right or left hand. Cables may be brazed, soldered or clamped to the copper alloy cable connector. The holder consists of only a few parts, easy to replace. Jackson says it is well-insulated and exceptionally cool working.

No. 100—For further information see Page 19

Electrodes

Arcos Corporation, 1500 S. 50th St., Philadelphia, Pa., has developed three new low hydrogen welding electrodes said to save fabrication time through the elimination of pre-heat in the welding of low alloy high strength steels. They are known as Tensilend 70, 100 and 120. Arcos states that Tensilend 70, with its stainless type coating and high tensile weld deposit, is expected to have the broadest field of application. The new electrodes perform satisfactorily without pre-heat even in freezing temperatures. They open up a wide range of applications in the metal-working, construction, etc. industries where on-the-spot fabrication is desirable. Bulletin available.

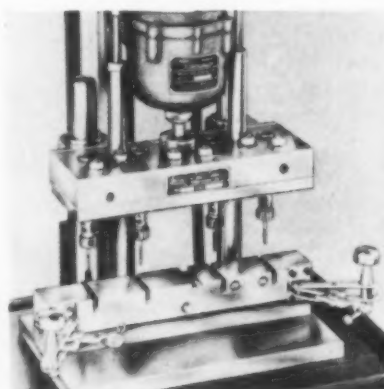
No. 101—For further information see Page 19

Face Mill

A new Shear Clear close-bladed face mill, with inserted carbide-tipped blades, designed for milling cast iron at high feed rates has been introduced by The Ingersoll Milling Machine Co., Rockford, Ill. Feed rates as high as 90 inches are possible and tool life has been found to be as high as 5 times that of previous tools, Ingersoll states. Available in diameters from 2" up.

No. 102—For further information see Page 19

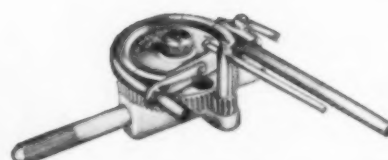
Multi-Tapper



The Charles L. Jarvis Co., Middletown, Conn., has announced a new Multi-Tapper for multiple tapping and drilling in mass production lines. The device features a silent roller chain to transmit power from the Torqomatic drive unit. The chain withstands constant friction and can absorb the tremendous shock loads due to continuous forward and reverse action. Less wear of gears, quiet operation and increased production at lower cost are claimed. The number of spindles is limited only by the size of tap or drill and the work.

No. 103—For further information see page 19

Tube Benders



Full 180° bends, and positioning at any point on the tubing without disassembly are two of the advantages listed for the new gear-type tube benders announced by The Imperial Brass Mfg. Co., 1200 W. Harrison St., Chicago 7, Ill. The high gear ratio of the benders is said to make bending exceptionally easy. Other features claimed are compactness, light weight, and quality of bend. The benders are designed for use with copper, brass, aluminum or steel tubing, including Bundy and thin-wall conduit. There are individual benders for $\frac{1}{2}$ ", $\frac{3}{8}$ ", $\frac{3}{4}$ ", $\frac{7}{8}$ " and $1\frac{1}{8}$ " OD tube sizes, nominal tube sizes $\frac{3}{8}$ ", $\frac{1}{2}$ ", $\frac{5}{8}$ ", $\frac{3}{4}$ " and 1". There are also combination benders which take several sizes. Bulletin No. 382-A available.

No. 104—For further information see page 19

Stainless Strip

The Wallingford Steel Co., Wallingford, Conn., has announced its wider and heavier 18-8 Bright annealed stainless strip steel. A more brilliant finish, which eliminates rough and finish grinding, and wider strips, which provide for versatility of fabrication, are claimed for the steel. It is available in widths up to 15" and thicknesses to .070, in all tempers, and tailored to a particular job.

No. 105—For further information see page 19

(Please turn to page 212)

Quality that saves money...that's why

Today it's **Roebling!**



for Cold Rolled Spring Steel

JUST PUT IT on one basis . . . *dollars and cents!* If you cut down preparation time, you save money. If you cut down machine stoppages and rejects, you save still more. And you'll make *all* these savings with Roebling Cold Rolled Spring Steel because it's dimensionally accurate . . . absolutely uniform in physical properties and structure . . . one inch just like every other inch.

Roebling Cold Rolled Spring Steel is available annealed, hard rolled untempered; scaleless tempered; tempered and polished; tempered, polished and strawed, or tempered, polished and blued.

Have your Roebling Field Man help you select the cold rolled spring steel—or the round, flat or shaped wire—that will help improve both your product and your production, and give you genuine economy. John A. Roebling's Sons Company, Trenton 2, New Jersey.

ROEBLING

A CENTURY OF CONFIDENCE

Atlanta, 934 Avon Ave. ★ Boston, 51 Sleeper St. ★ Chicago, 5525 W. Roosevelt Road ★ Cincinnati, 3253 Fredonia Ave. ★ Cleveland, 701 St. Clair Ave., N. E. ★ Denver, 4801 Jackson St. ★ Houston, 6216 Navigation Blvd. ★ Los Angeles, 216 S. Alameda St. ★ New York, 19 Rector St. ★ Philadelphia, 12 S. Twelfth St. ★ Portland, 1032 N. W. 14th Ave. ★ San Francisco, 1740 Seventeenth St. ★ Seattle, 900 First Avenue S.



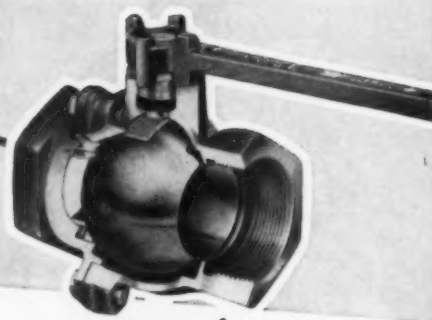
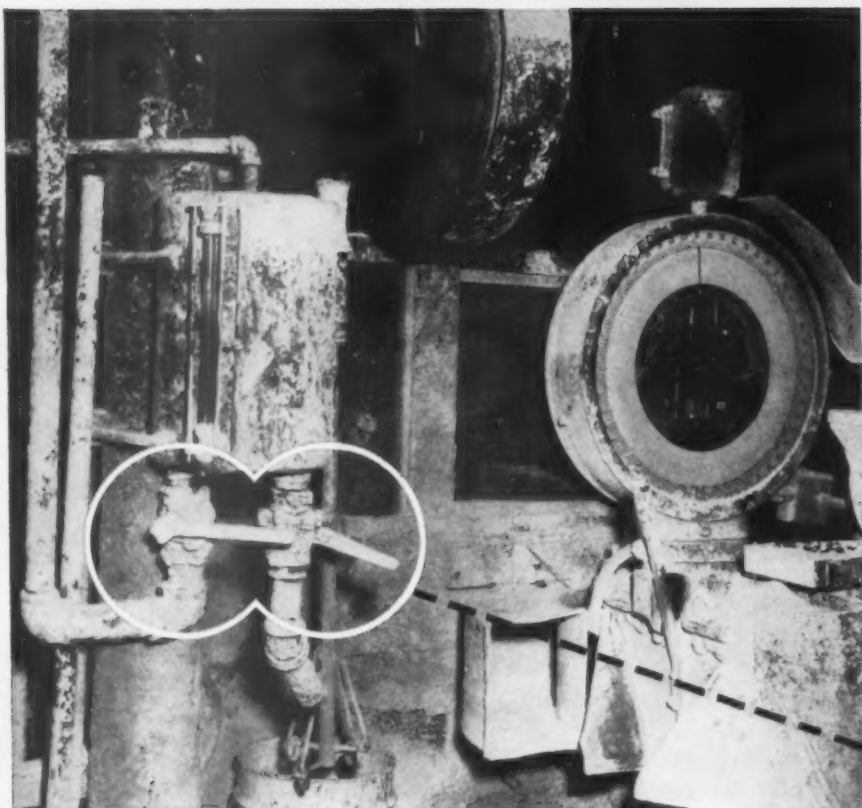
Roebling has one of the largest specialty wire mills in America. Special techniques and the most modern precision machines assure a product that brings you faster, smoother operation.

OPERATED *350,000 TIMES!*

with
**NO
MAINTENANCE**

Libbey-Owens-Ford
Glass Company
obtains outstanding
results with

**ROCKWOOD
BALL VALVES**
Only Valve to Stay in
Service Over a Year



Here, in this glass plant, Rockwood Ball Valves are giving *unsurpassed* service under extreme rugged conditions. For over a year, they have been opened and closed over and over again without the need of maintenance.

The two 1½" Rockwood Valves shown above are used on river water to mix plaster for the Grinding and Polishing line. Both Valves are worked 24 hours a day, 5 to 6 days a week and are operated approximately 1500 times a day depending on line speed. Company official says, "We are very well pleased with their operation; the best service we could get from other makes of valves prior to this was 6 to 8 weeks."

This plant is only one of many that is getting outstanding results from Rockwood Ball Valves. Place your order today for the new Rockwood Ball Valve.

For additional information and uses, write for bulletin V-4 today.

FULL ROUND FLOW!
LEAK PROOF SERVICE!

To ensure top performance, Rockwood engineers designed the Rockwood Ball Valve with these 7 outstanding features. 1. Full round open area — no turbulence in fluid stream. 2. Leak proof after continued use. 3. Floating ball — resists pitting, scratching and abrasion. 4. No exposed seating surface in open or closed position. 5. Easy to open or close under full pressure. 6. Installed in any position. 7. Quarter turn (90°) opening and closing valve.

Rockwood Ball Valves are available in bronze from ½" to 2" for 300 p.s.i. working pressure and are recommended for use on lines handling water, air, gas, petroleum, food, carbon dioxide, nitrogen, paraffin and asphalt base petroleum, also alcohol, paper fluids and other types of liquids and gases.

Distributors in all principal cities.



ROCKWOOD SPRINKLER CO

104 HARLOW STREET WORCESTER 5, MASS





Artist — Narciso Dobal, native of Puerto Rico

PUERTO RICO — annual purchases: \$535 million — mostly packaged.

CONTAINER CORPORATION OF AMERICA



NEWS
TO
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ONLY ONE COAT
NEEDED

PAINTABLE SMOOTH
HARD SURFACE

HEAT SHRINKAGE
UNDER 1%

BH

POWERHOUSE

EXTREMELY HIGH ADHESION

CEMENT

ADHERES TO
BLOCKS • BLANKETS
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EFFECTIVE
UP TO 1700° F

EASY ON LABOR

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send for
quick
facts

Please send me complete information on
B-H Powerhouse Cement.

NAME _____

POSITION _____

FIRM _____

ADDRESS _____

SEND THIS COUPON TO

BALDWIN-HILL COMPANY

407 BRUNIG AVE. TRENTON 2, NEW JERSEY

Directional Lampholders

Silv-A-King Beam-A-Lite sealed beam directional lampholders have been completely redesigned and are now available in two sizes, one for the 150-watt PAR-38 spot or flood lamp, and the other for the 300-watt R-40 flood lamp. Both lampholders are cast aluminum and incorporate an adjustment screw in the back to insure a weather tight fit of lamps regardless of lamp variations. A complete line of accessories can be obtained, including a multiple junction box that can accommodate up to 8 Beam-A-Lites. Bulletin No. 2526 available. Manufacturer is Bright Light Reflector Co., Inc., Fairfield Ave. & State St., Bridgeport 5, Conn.

No. 106—For further information see page 19

Handling Device



For faster and more efficient handling of roll materials, Clark Equipment Company, Battle Creek, Mich., offers a rotating clamp device for use on all gas and electric carloader model fork-lift trucks with standard rated capacities of 3000 to 5000 lbs. Two basic actions, clamping and rotating, are accomplished hydraulically. Rolls may be handled in vertical or horizontal position, and changed from either position to the other. A roll can be rotated at uniform speed through 90°. Clamping arms are adjustable in three positions for handling loads of varying diameters. Bulletin available.

No. 107—For further information see page 19

Fans

New giant fans for factories, offices and stores, capable of circulating more than twice as much air as previous models of the same size, have been introduced by Westinghouse Electric Corp., Pittsburgh 30, Pa. Also announced is an air jet vane accessory that increases the new blowers' penetration power 200 to 300%. Westinghouse says the 16" fan can move 3200 cubic feet of air a minute, or twice the capacity of most standard 16" fans.

The 20" fan moves 7500 cubic feet of air a minute, a capacity exceeding that of many fans 30" in diameter and larger. Called the Whirlaire fans, they are available in counter and adjustable pedestal models. The counter models may be used on a table or shelf, or may be mounted on wall or ceiling.

No. 108—For further information see page 19

Sealing Tape

McLaurin-Jones Co., Brookfield, Mass., has a new heavy-duty reinforced sealing tape for corrugated cartons which is described as 4 to 6 times as strong as ordinary sealing tape. It consists of two sheets of kraft laminated with asphalt in which are imbedded glass fibers for added strength. The fibers are spiraled in such manner as to give a strong tear test in both the machine and cross machine directions. It is water-resistant and can be furnished with waterproof gumming. It is flexible and smooth on both sides. Results of severe tests of the tape, conducted by Container Laboratories, Inc., are available from McLaurin-Jones.

No. 109—For further information see page 19

Spray Gun

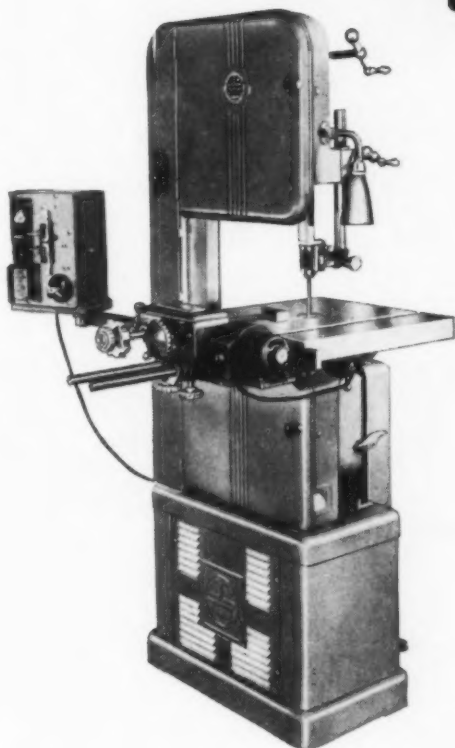


Eclipse Air Brush Co., 390 Park Ave., Newark 7, N. J., has introduced a spray gun with a new type controllable nozzle which is said to control the width of the "spray pattern" from the size of a silver dollar to a swath more than 12" wide. Eclipse says the operator can project a stream of atomized material in a workable pattern to normally inaccessible surfaces up to 6 ft. beyond his reach. Called the "GAT-2" the gun also features a four-finger trigger that is said to cut down finger fatigue and permit the user to handle the gun while wearing bulky gloves.

No. 110—For further information see page 19
(Please turn to page 214)

Now — for Walker-Turner 16" Band Saws

New AUTOMATIC Power Feed



Latest example of how Walker-Turner design helps industry speed production . . . cut costs

Overload a metal-cutting band saw and what happens? Distortion . . . blade failure . . . work stoppage . . . expense! It can't happen here — on this new 16" Band Saw.

Walker-Turner Power Feed, a revolutionary machine development, gives you positive blade protection. Motor driven, and automatically controlled by the resistance encountered at the cutting edge, this exclusive new mechanism maintains a pre-set feeding pressure. Easily adjusted for blade condition and various types of material.

Here is another example of how Walker-Turner design — *functional* design — speeds cutting time and increases machine operating efficiency. Take advantage of this engineering *plus* . . . specify the machine designed with your specific needs in mind, and cut production costs.

Ask your Walker-Turner distributor to show you the new Automatic Power Feed for the 16" Band Saw, as well as other cost-cutting equipment in the complete Walker-Turner line. Send coupon for new catalog today.

SOLD ONLY THROUGH AUTHORIZED DEALERS



WALKER-TURNER DIVISION

PLAINFIELD, NEW JERSEY

SEE YOUR



DISTRIBUTOR

DRILL PRESSES • RADIAL DRILLS • TILTING ARBOR SAWS
BELT and DISC SURFACERS • METAL-CUTTING BAND SAWS
LATHES • SPINDLE SHAPERS • JOINTERS

**Walker-Turner Division, Kearney & Trecker Corp.
Dept. P5, Plainfield, New Jersey**

Please send the Walker-Turner Machine Catalog

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Always choose the Best . . .
choose Gold Stripe

 <p>Top-grade, pure bristle with maxi- mum carrying capacity.</p>	 <p>Constant bristle formula for longer wear, greater efficiency</p>
 <p>Riveted steel ferrules combine bristle and handle for long life.</p>	 <p>Hardwood han- dles for perfect balance that means easy handling.</p>
 <p>The Gold Stripe on the brush guarantees a dependable tool.</p>	 <p>Lifesaver Jacket keeps brush lively, straight and clean.</p>

**for better, faster paint
jobs at lower cost!**

Gold Stripe brushes are quality tools. That's why you'll find they stand up under tough going. They're designed by expert craftsmen under job-tested conditions. For smoother, faster painting, try *Gold Stripe* on the next job that comes up . . . and let the results speak for themselves.

**WHEN LOW
INITIAL COST
IS A FACTOR**

Take advantage of the big savings offered by Pittsburgh's Bristle-Neoceta and Neoceta paint brushes.

FOR INFORMATION

Write us or contact one of our nearby branches for fast, efficient service.
PITTSBURGH PLATE GLASS COMPANY,
Brush Division, Dept. M-3, 3221
 Frederick Ave., Baltimore 29, Md.

PITTSBURGH *Gold Stripe*
BRUSHES FOR INDUSTRY



BRUSHES • PAINT • GLASS • CHEMICALS • PLASTICS

PITTSBURGH PLATE GLASS COMPANY

Induction Heater



The High Frequency Heating Divn., Lindberg Engineering Co., 2444 W. Hubbard St., Chicago 12, Ill., has introduced its LI-10 induction heating unit, with several new features incorporated. On a 100% duty cycle basis, the unit is capable of providing more than 10 kilowatts into a suitable load. Single and two station models are available with high and low impedance terminals at each station. Input is 230 or 460 volts, 3 phase, 60 cycles. Tubes are operated under optimum conditions for maximum life. All filament voltages are automatically regulated by constant voltage type transformers. Bulletin T-1430 available.

No. 111—For further information see page 19

Steam Cleaner



A "super-duty" steam cleaner for the biggest cleaning jobs, and also for heat-transfer uses, has been announced by Hypressure Jenny Divn., Homestead Valve Manufacturing Co., Coraopolis, Pa. Homestead says the cleaner will clean grease, grime and dirt from machinery and equipment 48 to 60 times faster than by hand methods, and six times faster than any extra-heavy-duty steam cleaner. Its 300 gallons per hour capacity will operate from 1 to 4 cleaning guns. Full operating pressure is reached within 2 minutes from a cold start. In less than 2 minutes it can be changed over for use as a heat generator, with heat output equivalent to a 25 hp boiler. Available in trailer mounted, portable, and stationary models.

No. 112—For further information see page 19
 (Please turn to page 218)

What would you like to know ABOUT STAINLESS STEEL?



STAINLESS STEEL

A. R. Purdy Co.
INCORPORATED

INTRODUCTION TO TABLES

In selecting a grade of stainless steel first determine the important factors in its use, i.e., corrosion resistance, tensile strength, workability, etc., and then refer to the tables shown under their respective headings in order of importance.

As all of the tables are necessarily average results, we welcome the opportunity to furnish further data on specific uses, or samples for actual test under your conditions.

For purposes of clarity in selecting grades, items available from warehouse stocks are starred in comparative tables.

We are the exclusive mill and warehouse stainless bar distributor for Copperweld Steel Co. for New York, Connecticut, New Jersey and Eastern Pennsylvania.

COLD FINISHED ROUNDS

The following sizes are carried in our stock in types 416-302-304-303
All 1/2's available in Type 316
1/2 and Over Center Ground

Under 1/2" Round—Cold Drawn				1/2" and Over Center Ground			
Size in Inches	Weight Per Ft. (Lbs.)	Size in Inches	Weight Per Ft. (Lbs.)	Size in Inches	Weight Per Ft. (Lbs.)	Size in Inches	Weight Per Ft. (Lbs.)
3/32	.004	15/32	.605	1-5/16	4.738	2-1/2	15.512
7/64	.009	1/2	.688	1-3/8	5.000	2-5/8	17.181
1/8	.014	17/32	.777	1-1/2	5.564	3-1/8	18.957
9/64	.019	3/4	.879	1-3/4	6.188	3-3/4	20.796
5/32	.024	5/8	1.074	1-7/8	6.715	3-7/8	22.722
11/64	.029	11/16	1.360	1-5/8	7.263	4	24.751
3/16	.037	3/4	1.947	1-11/16	7.837	4-1/8	26.952
7/32	.049	13/16	2.106	1-3/4	8.403	4-3/8	29.006
1/4	.062	7/8	2.417	1-15/16	9.006	4-1/2	31.677
5/16	.077	15/16	2.790	1-7/8	9.672	5	34.952
3/8	.095	1	3.106	2	11.000	5-1/2	38.722
11/32	.117	1-1/8	3.481	2-1/8	11.472	6	43.001
3/4	.146	1-1/4	4.297	2-3/8	12.006	6-1/2	47.914
7/16	.165			2-1/2	12.678		

COLD DRAWN HEXAGONS

Size in Inches	Weight Per Ft. (Lbs.)	Size in Inches	Weight Per Ft. (Lbs.)	Size in Inches	Weight Per Ft. (Lbs.)
1/4	.130	5/8	1.185	1-1/2	10.033
3/8	.257	1 1/8	1.414	1-3/4	11.434
1/2	.426	1 1/4	1.726	2	14.719
5/8	.681	1 3/8	2.002	2-1/8	16.600
3/4	.958	1 1/2	2.322	2-1/4	18.244
7/8	1.260	1 3/4	2.690		

BAR SIZES
SHEET SIZES
TUBING & PIPE

TYPE NUMBERS
COMPARISON

CORROSION RESISTANCE

GENERAL TECHNICAL

COMPARATIVE PHYSICAL

DECIMAL

**GET THE FACTS FROM
THE PURDY HANDBOOK!**

The new PURDY STAINLESS STEEL Handbook contains complete, easy-to-use data important to fabricators and buyers of every type of stainless steel. Physical characteristics, corrosion resistance and other factors are presented in clear, readily understandable tables. Keep a copy handy. If you need additional help—call on Purdy.

**SPRING STEEL • STAINLESS STEEL • COLD FINISHED STEEL • TUBING
DRILL ROD • COLD ROLLED STRIP STEEL • ALUMINUM SHEETS AND COILS**

A. R. Purdy Co.
INC

Orient Way and Page Ave., Lyndhurst, New Jersey

LYNDHURST: Rutherford 2-8100
CONNECTICUT: Enterprise 6400

NEW YORK: Chelsea 3-4455
SYRACUSE: Enterprise 6400

NEWARK: Humboldt 2-5544
ROCHESTER: Enterprise 6400

TELETYPE: RUTHERFORD, N. J. 79

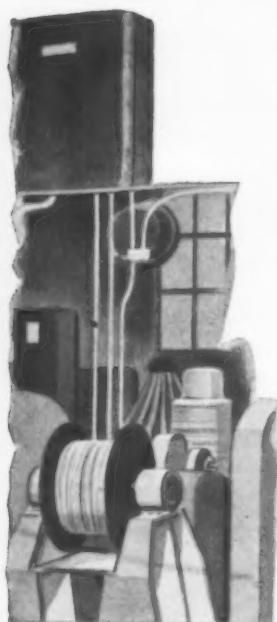


Figure on PURDY
for fast, thorough service
in steel and aluminum

When you need stock fast, call Purdy's Special Sales, Small Quantity, Day or Evening. You can rely on the Purdy complete warehouse service for prompt, accurate delivery on every order. Place your next order with Purdy—this is the way it's handled!

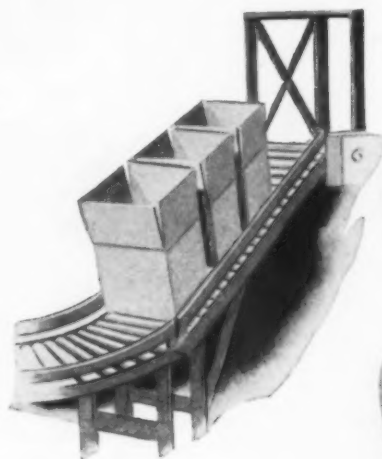
WORLD'S LARGEST DISTRIBUTOR
OF SPRING STEELS

BEST BET TO



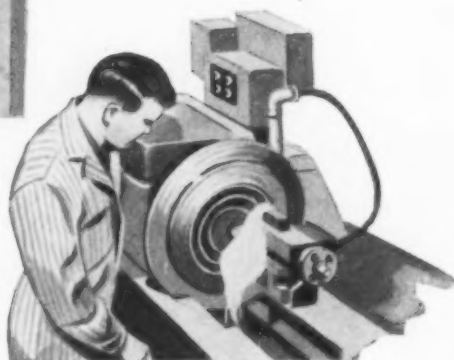
Boosted winding rate 300%

Here's a gain chalked up on the wire rewinders of a Pennsylvania steel company, by installing G-E adjustable-speed drives.



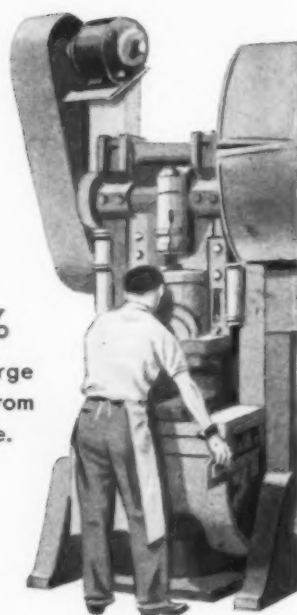
Speeded packaging 55%

Output of a box-sealing machine, newly equipped with adjustable-speed drive, jumped from 38,000 to 60,000 cartons per hour.



Stepped up punching 968%

A feat performed on a large punch press, hiking output from 78 to 800 parts per minute.

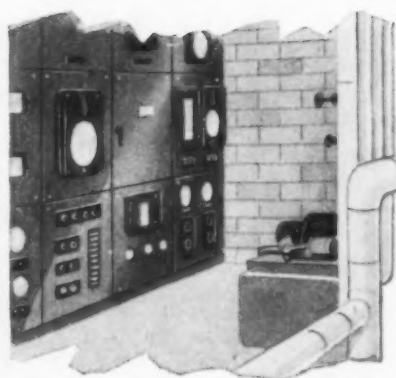


Raised turning output 66%

This was worked out by specifying adjustable-speed drive on an automatic lathe.

Increased grinding production 40%

This gain was achieved on a Buffalo company's face and knife grinder with—you guessed it—an adjustable-speed drive.



Speeded proportioning

A chemical manufacturer found it possible to go from batch to continuous processing in the production of phthalic anhydride by using adjustable-speed drives.

GENERAL  **ELECTRIC**

751-1

BOOST OUTPUT

General Electric adjustable-speed drives
can increase the output of your machines—
make them more accurate, more versatile

Extra production you never expected may be ready to roll from your driven machines. Call it bonus production, since you get it by using improved speed control, and not by adding new machines. You can expect even more than boosted output from properly applied adjustable speed—it's a single-handed help in improving product quality, minimizing waste of time and materials, and cutting down on rejects.

Adjustable-speed drives have been around for years. But General Electric has brought them to a new high in versatility and power to work production miracles. Now you can buy G-E drives precision-engineered to your machines, at mass-production prices. Now you can choose from a complete line of General Electric Drives—packaged drives providing utmost flexibility. G-E drives offer plants that can use better speed control a

quick way to halt the squeeze on profits.

TO UNCOVER OPPORTUNITIES for saving through the application of adjustable speed in *your* plant, General Electric offers this help:

First, the assistance of specially trained sales engineers who bring you the benefits of experience gained in applying adjustable speed to practically every kind of machine in practically every industry. Pick up your phone now and call your nearest G-E field office. You'll find the telephone number listed in your directory.

Second, a comprehensive, carefully illustrated book on the *whole* subject of adjustable speed. It's written from management's viewpoint, but backed up with all the facts an engineer needs. Write for your copy. *Apparatus Department, Sec. 751-1, General Electric Company, Schenectady 5, N. Y.*

New G-E Booklet on Adjustable-speed Drives



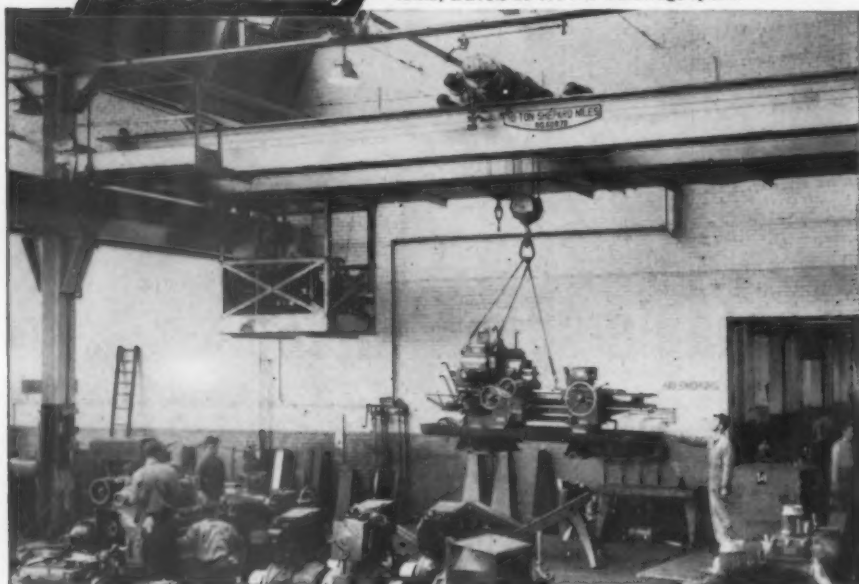
Your copy of the new 24-page adjustable-speed booklet is ready. Please write for Bulletin GEA-5334 on your business letterhead.



GENERAL ELECTRIC
Headquarters for
Electrical
ADJUSTABLE
SPEED DRIVES

*For Lowest Cost Per Load—
Use Dependable
Thru-the-Air Handling*

For this installation, operating conditions called for rapid travel over a large area. Controlled by operator in the cab, this Shepard Niles 10-ton, welded-beam crane, with main and auxiliary hoist units, travels at 450 F.P.M. bridge speed.



we start by asking "what"

WHAT are *your* problems? Under **WHAT** conditions will *your* crane be operated—intermittently, or under fairly constant conditions? **WHAT** are the operating speeds necessary to meet *your* productive cycle?

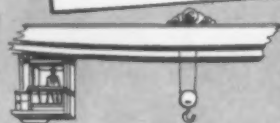
Your answer to these and similar questions will enable us to engineer your installation so that it will give you the best, and longest service—at the lowest cost per load over the years.

Be sure you get the crane best qualified to do *your* job. It's wise—and costs you nothing—to get the facts first, rather than to make expensive changes later.

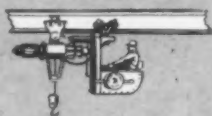
May we place our experience of a great many years of successfully designing all types of crane installations at your disposal?

Shepard Niles

CRANE & HOIST CORPORATION
Makes and sells all three lifting tools for airborne shop loads



CRANES • Overhead



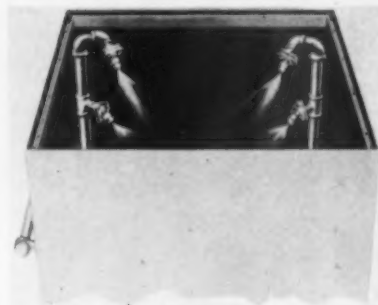
HOISTS • Cab Operated



HOISTS •
Floor
Operated

462 SCHUYLER AVENUE • MONTAUR FALLS, N.Y.

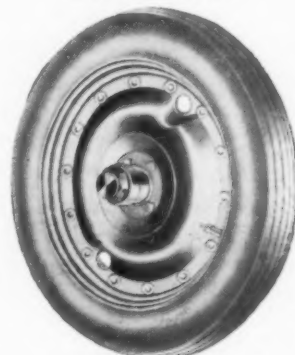
Spray Washer



A unit spray washer for washing intricate assemblies and small parts quickly is made by the Industrial Filter & Pump Mfg. Co., 1621 W. Carroll Ave., Chicago 12, Ill. Assemblies or baskets of small parts are placed in the cleaning tank, enclosed with the cover, and the cleaning solvent pumped through 16 nozzles that direct a fine, forceful spray onto the work. (Illustration shows cover off to demonstrate spray action). Only a few minutes cleaning time is required. Explosion-proof switch and motor pump permits use of low flash-point solvents. Four large casters make for easy mobility of the unit.

No. 113—For further information see page 19

Disc Wheel

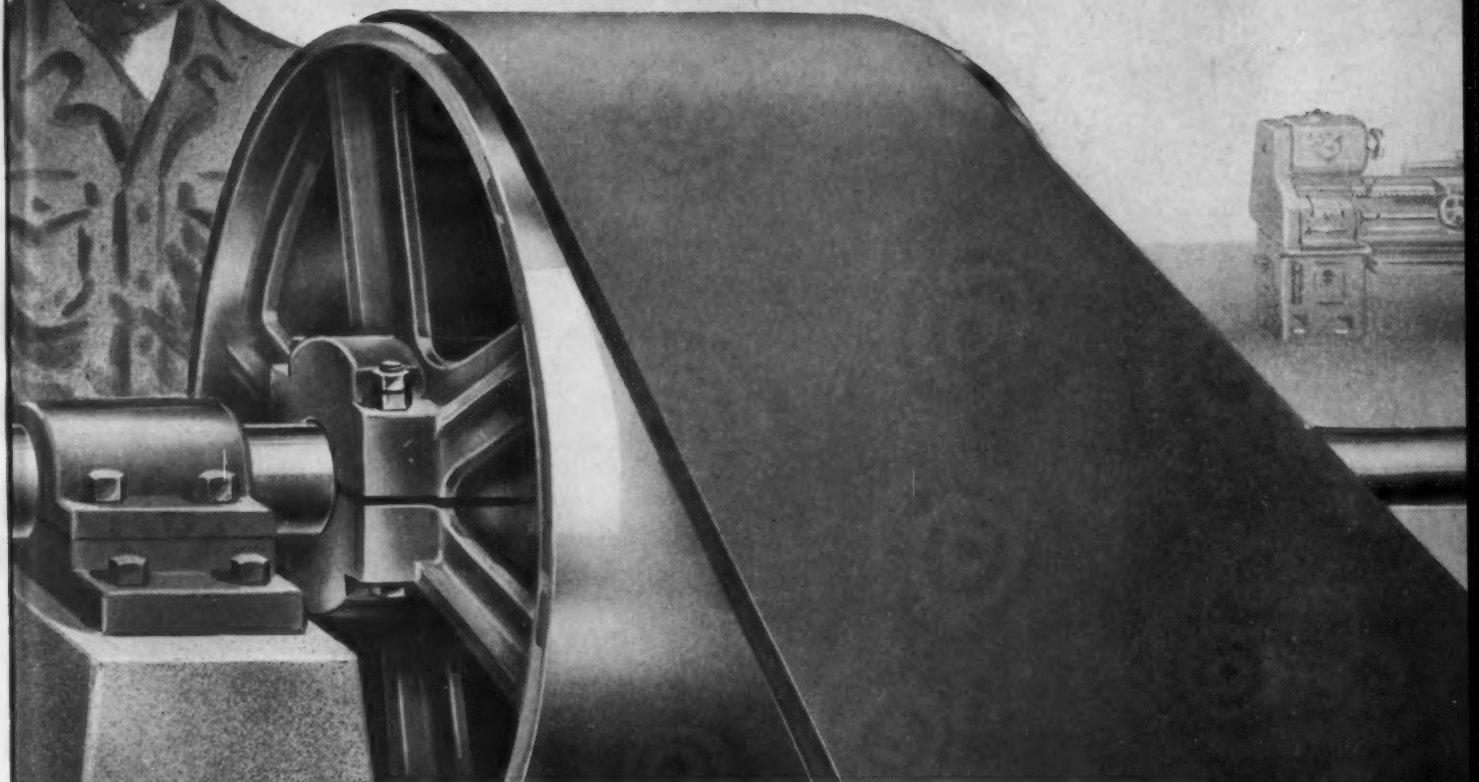


The Geneva Wheel Company, Geneva, O., has announced the new D-140 400 x 18—4 ply pneumatic tired disc wheel, 10 lbs. lighter than the 6.00 x 16—4 ply automotive, and suited to many different types of portable equipment used in factories, on roads and farms. Its diameter is 27", or about equal to the 600 x 16 automotive. Its ribbed tread, deep groove design is said to assure long, even wear and excellent performance on free rolling wheels. Construction is drop center rim double disc with seamless steel tubing hub. Wheels are complete with either tapered or straight roller bearings. There are chain holes in all wheels for theft security.

No. 114—For further information see page 19
(Please turn to page 220)



"THE BELT WITH A DOUBLE LIFE"



QUAKER TRANSMISSION BELTING LASTS 10 YEARS . . . CUTS COSTS IN HALF !

Day and night for six years . . . regular running for more than four years. That's the service record of an eighteen inch, six ply Quaker Ironsides Endless Belt on a forty foot drive powered by a 150 horsepower steam engine. Twice the length of service of any other belting . . . a saving of more than \$400.00.

More proof of why more plants are specifying Quaker for quality. Each and every Quaker Belt is designed for a par-

ticular job . . . pre-tested and performance proved for maximum service and lower operating costs.

That's why you'll find so many drives equipped with Quaker Belts throughout industry.

For less wear, stretch and slippage . . . for positive power transmission Quakerize your drives. There's a Quaker flat belt or V-Belt for every industrial need. Write for complete catalog.

PACKINGS THAT PRESERVE POWER

Quaker packings are pre-tested for size, shape and quality to assure perfect fit, long service, maximum power.



HOSE FOR RUGGED WEAR

Pre-tested and performance proved for flexing and strength, there is a Quaker Hose for air, steam, liquids.



QUAKER RUBBER CORPORATION • PHILADELPHIA 24, PA.

Division of H. K. Porter Company, Inc.

Pittsburgh • New York • Cleveland • Chicago • Houston • Atlanta
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QUAKER RUBBER PRODUCTS

custom made for every industrial use



Write for Catalog
OF USES
AND SPECIFICATIONS

GENERAL Industrial Pneumatics

ADD THESE 6 SELLING POINTS
TO YOUR PRODUCT

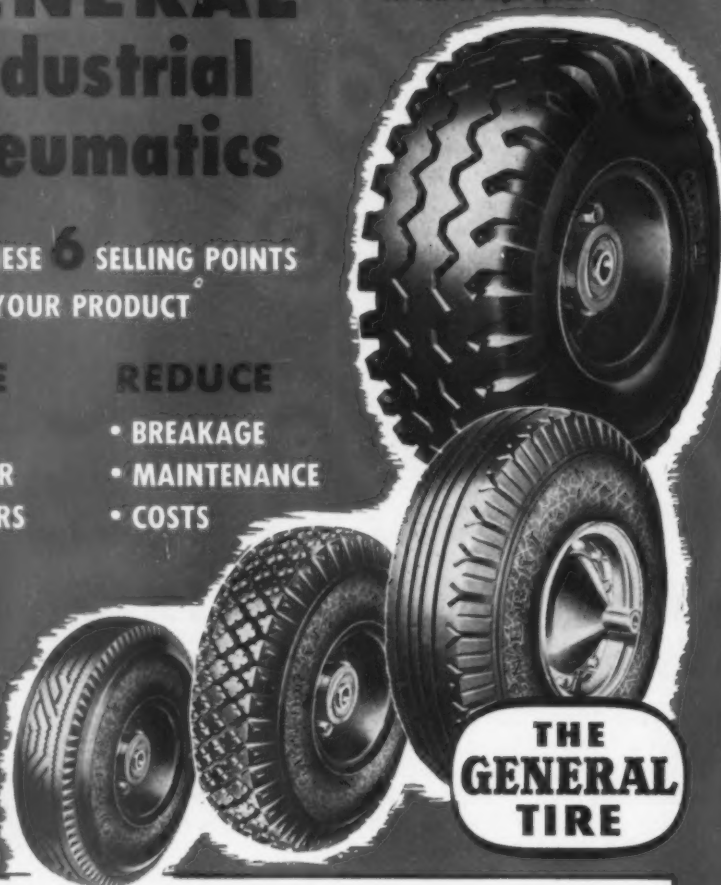
SAVE

- TIME
- LABOR
- FLOORS

REDUCE

- BREAKAGE
- MAINTENANCE
- COSTS

Available in assemblies of Tires,
Tubes and Wheels. Size O. D. 8"
to 23"—200 to 2000 lbs. capacity
for low or high speed.



General Industrial Tire 16"
O. D. on Wide-Base Rim.

Conventional Tire 16"
O. D. on Narrow-Base Rim.

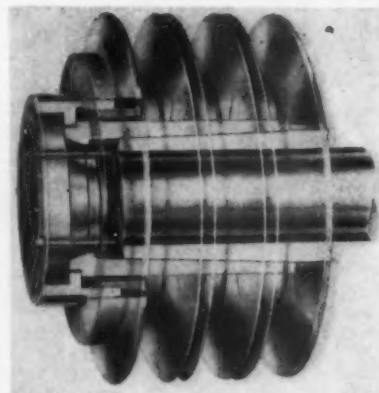


More AIR VOLUME *More* STABILITY
More LOAD CAPACITY *More* MILEAGE

SEND FOR CATALOG . . . DEPT. 7

THE GENERAL TIRE & RUBBER CO. AKRON, OHIO

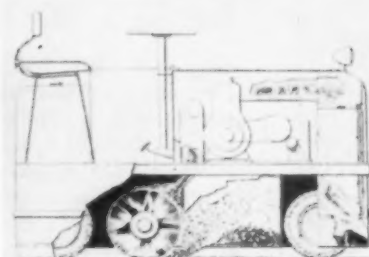
V-Belt Sheave



The American Pulley Co., 4200 Wissahickon Ave., Philadelphia 29, Pa., has introduced a new adjustable-diameter V-belt sheave, with taper bushing and taper sleeve on which the flanges are mounted. The double-taper hub feature, in addition to providing easy mounting and dismounting of the sheave, is designed to rigidly lock the unit into a single, "solid" sheave. American says this eliminates vibration, wear and fretting corrosion—performance never before obtainable in an adjustable-diameter sheave. The sheave is available for most standard and wide-range adjustable-diameter drives at no extra cost.

No. 115—For further information see page 19

Industrial Sweeper



A new motorized sweeper for indoor and outdoor use by industrial firms, institutions, etc. has been placed on the market by Wayne Manufacturing Co., Pomona, Calif. It is an all-enclosed, flush-bodied, tri-wheel unit. It is equipped with a new type vacuum dust control system that is said to assure dustless sweeping under extreme conditions. It sweeps a 42" swath at 6 mph. It is powered with a 7½ hp engine, equipped with self-starter. Overall dimensions are: width, 46½"; length, 80" and height, 52". Dust is deposited in easily emptied metal container. There are no dust bags to shake out.

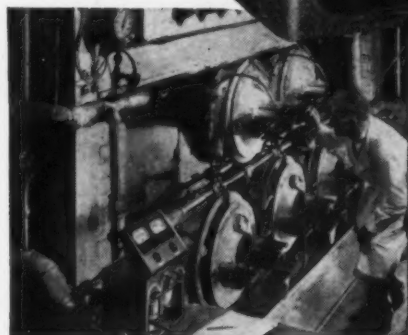
No. 116—For further information see page 19
(Please turn to page 222)

This Miraculous Instrument Tells All!

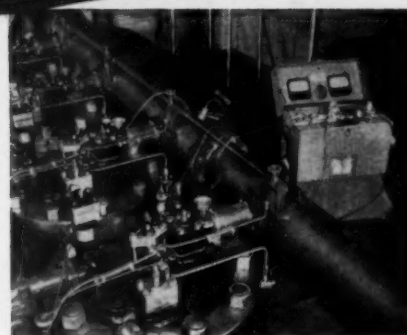
Yes, the Cities Service Heat Prover tells all you want to know about the combustion efficiency of gas and Diesel engines...and industrial furnaces of all types.



1. Hundreds of Industrial Firms—including leading steel, locomotive, truck, automobile, aircraft, tool, instrument manufacturers and others, are profiting from this unique service. Above shows use on Open Hearth Steel furnace.



2. Immediate Production Increases—are realized by fast control of furnace atmospheres. The Heat Prover quickly and accurately registers both excess oxygen and unburned fuel being wasted on this industrial boiler.



3. Gas and Diesel Exhaust Analysis—here being made on a large 4-cycle Diesel. This remarkable instrument gives a continuous record of what percentage of the fuel entering the combustion chamber is converted into productive energy.

QUALITY PETROLEUM PRODUCTS



FREE . . . This Helpful New Booklet

CITIES SERVICE OIL COMPANY
Sixty Wall Tower, Room 608
New York 5, New York

Please send me without obligation your new booklet entitled "Combustion Control for Industry."

Name

Address

City State



STAINLESS STEEL . . .

its many
applications in
the field of
ARCHITECTURE



Stainless steel has inspired resourceful architects with so many uses for this most practical and decorative metal that it has certainly come into its own!



Because it will not rust, corrode or discolor, stainless steel is eminently practical: it is sturdy, long lasting and variously adaptable.

Because of its silvery sheen it lends the luxurious, decorative touch of beauty to interiors and exteriors.

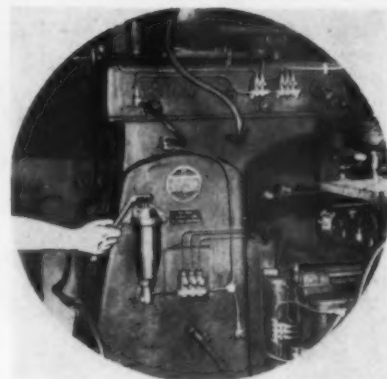


Especially adaptable to the ideas of architects is *MicroRold* Stainless Steel. It is now being rolled in sheets up to 36" wide as light as .010" in thickness, and sheets 30" wide as light as .005" with *amazing uniformity of gauge*.



WASHINGTON STEEL CORP.
WASHINGTON, PA.

Master Oiler



Lincoln Engineering Co., 5738 Natural Bridge Ave., St. Louis 20, thinks its new master oiler is destined to replace the oil can in industrial lubrication. The unit, known as the *CentrOiler*, may be installed on any machine tool now relying on the oil can to lubricate a multiplicity of bearing points. No special engineering skill or knowledge is required to make the installation. The system allows the machine operator to apply the right oil, in the right quantity, at the right time, to every machine bearing point. It consists of the *CentrOiler* pump supplying lubricant through a single line circuit of SL-4 injectors which in turn deliver a predetermined, measured quantity of oil to each bearing every time the system is cycled. Bulletin 802 available.

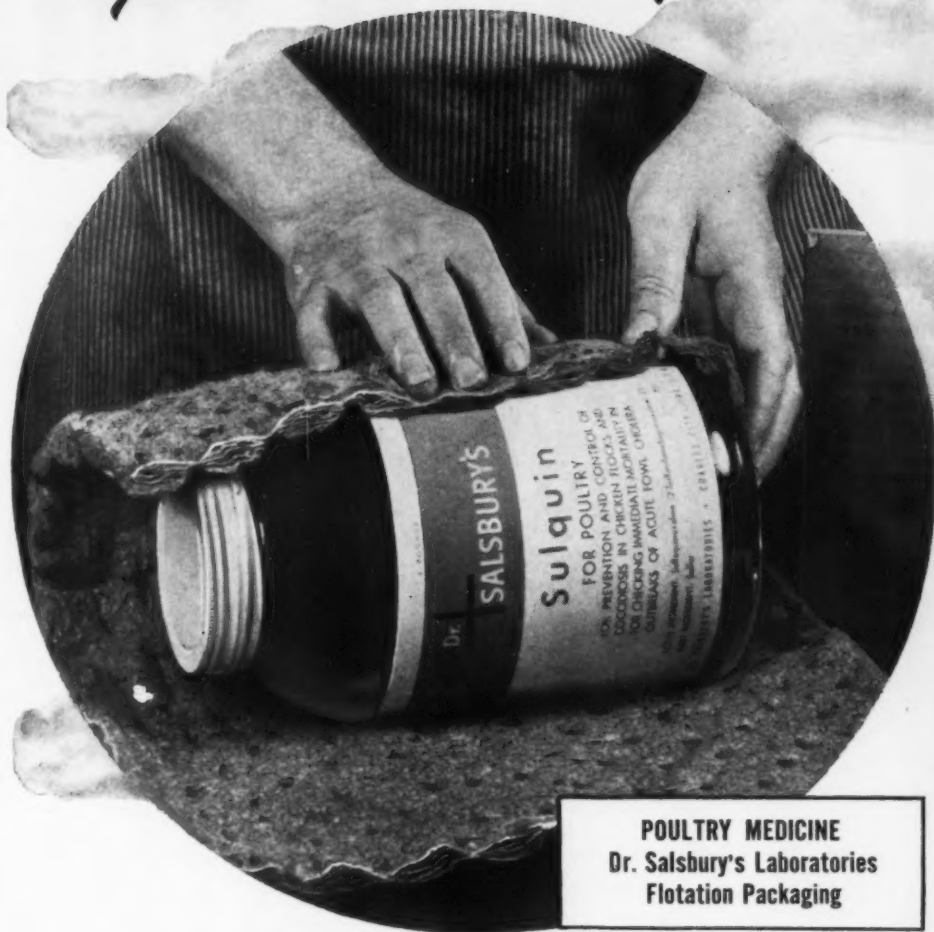
No. 117—For further information see page 19

Bench Micrometer

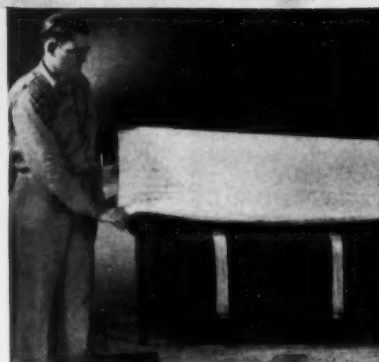


Browne & Sharpe's indicating bench micrometer No. 245 is a precision tool for measuring small parts accurately that can be used in three distinctly different ways. It measures from 0 to $\frac{1}{2}$ " by .0001" directly from the micrometer thimble; it can be used as a comparator and is set without additional standards with readings to .0001" taken from the dial gage and it measures by .0001 directly from the dial gage with micrometer set at nearest .0001" of the measurement. The micrometer has an adjustable measuring pressure from 8 oz. to 2 lbs. that remains constant when set. (Please turn to page 226)

Kimpak* Float Packaging



POULTRY MEDICINE
Dr. Salsbury's Laboratories
Flotation Packaging



Surface Protection. Love seat. Photo courtesy of Century Furniture Company, Hickory, North Carolina.

Cuts shipping costs — reduces damage in transit!

Do you handle your product with extreme care during the manufacturing process—then trust it to outmoded, inferior quality packaging materials after it leaves your shipping room? You may not be able to answer that question if you haven't seen KIMPAK* Float Packaging at work.

It's the modern way to ship anything from delicate glassware to furniture and appliances; from drugs and pharmaceuticals to flowers and food. It's also one of the most efficient packaging methods in the world—giving optimum protection at minimum cost.

KIMPAK creped wadding is as neat, clean and easy to apply as wrapping paper, to make your packaging operation fast, up-to-date. It's designed to

absorb continuous vibration, ward off severe shocks, cushion and defend your product against roughest handling. This highly-efficient cushioning material protects the finest finish from scratching, bruising, pressmarking and "burning".

KIMPAK is available in sheets, pads, rolls, various thicknesses and backings; absorbent or moisture resistant. There is a specification for all four basic methods of interior packaging: Bracing and Blocking, Flotation, Surface Protection, Absorbent Packaging. For further information, contact your nearest distributor, listed in classified phone directories under "Packing Materials" or "Packing Materials—Shipping"; or write to Kimberly-Clark Corporation, Neenah, Wisconsin.



Combination Wrap. Cory coffee brewer. Photo courtesy of Cory Corporation, Chicago, Illinois.

FREE BOOKLET!

KIMBERLY-CLARK CORPORATION
Neenah, Wisconsin P-650
Please send me free the illustrated
KIMPAK booklet, "Float Packaging."

Name

Firm

Address

City, Zone, State

Kimpak

REG. U.S. PAT. OFF. & FOREIGN COUNTRIES



CREPED WADDING

*T. M. REG. U. S. PAT. OFF.

JUNE, 1950

Want Additional Product Information? See Page 19.

223

all
new
all
the
way
thru

Buy One



MOTOR STARTERS
with the

'Strongbox' Magnet Coil

All the best features in popular sizes for motors to 50 hp. See for yourself. Get a new General Electric Motor Starter. Get out your screwdriver. And get the facts. Make your own comparison on these big ALL-NEW features.

STRONGBOX MAGNET COIL—Coil is locked in a tough block of plastic.

NEW ARC HOOD—Molded, burn-resistant arc hood snuffs arc immediately.

NEW CONTACTS—Large silver contacts with plenty of contact pressure give long life. Convertible from normally open to normally closed in size one and smaller—without additional parts.

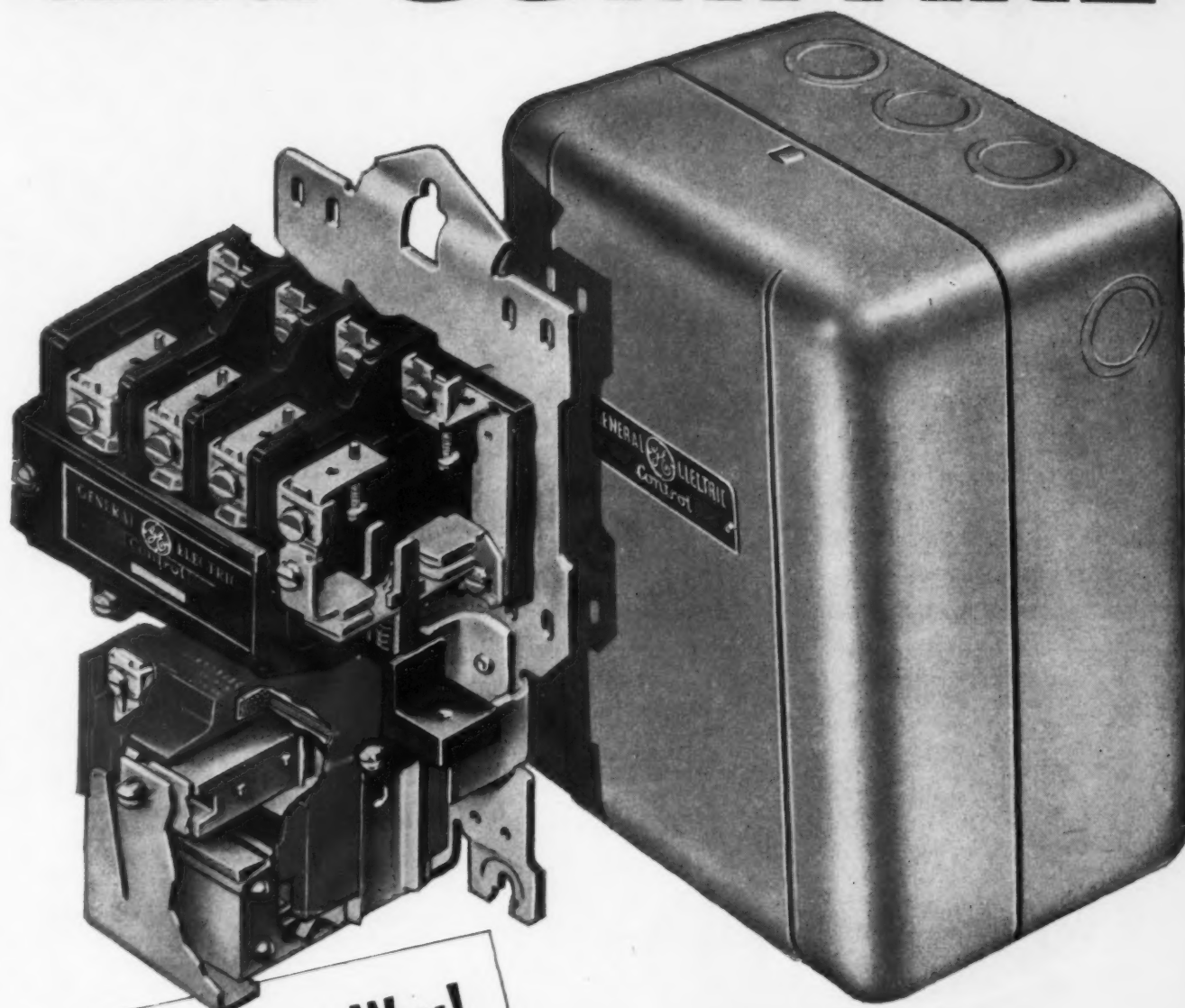
NEW MAGNET—Quick direct action, large striking surface.

EASY TO INSTALL—EASY TO MAINTAIN—See how easy it is to get at the ALL-NEW General Electric starter. Note, too, that it's built to take the punishment of day-in, day-out use with a minimum of maintenance. Check the wiring space inside the case. Check the terminal clamps that make installation fast. Check the ease with which controls can be inspected.

DESIGNED FOR FAST ACTION—BUILT FOR LONG LIFE—From the tough STRONGBOX magnet coil to the high strength arc hood, all parts of the new General Electric Motor Starter are built to last. In the revolutionary G-E design, the plastic coil enclosure also serves to guide the armature. For fast, positive action the tough plastic block is impregnated with a permanent lubricant, molybdenum sulphide. Channel-reinforced magnet guides slide smoothly for quick action at all times. Bimetallic thermal relays give swift protection.

GENERAL  **ELECTRIC**

and COMPARE



Order this Easy Way!

Look inside. Make the screwdriver comparison test. Inspect the many new features, and we're sure you'll be enthusiastic. Just fill in the coupon at the right and we'll send you the starter immediately. Or, if you prefer, we'll be glad to send you the new, free, tell-all booklet "Look Inside and Compare" that gives more detailed information.

General Electric Company, Apparatus Department
Section R676-281, Schenectady 5, N. Y.

Send me one of the NEW CR7006 starters (size 1, 3 pole, enclosed). List Price \$22.00.

☐ Check Enclosed. (Add any state or local sales or use taxes)

☐ Purchase order attached; bill to our account with: _____

(Name and address G-E sales office or G-E distributor.)

Motor Horsepower Rating (check one)

☐ 3 ☐ 5 Horsepower at 220 Volts } 60 Cycles, 3 Phase
☐ 3 ☐ 5 ☐ 7½ Horsepower at 440 Volts }
Approx. Motor Speed ☐ 1800 RPM ☐ 3600 RPM ☐ 1200 RPM

Name _____

Address _____

City _____ Zone _____ State _____



Just because you used catsup on your steak, the waiter shouldn't assume you use it on the rest of your dinner too!

And just because one bearing is best lubricated by one particular grade of oil, you shouldn't assume that the same oil is best for *all* bearings on that machine. In many cases it isn't.

OIL CUPS permit you to lubricate each bearing with the oil best suited to that bearing—thus prolonging bearing life, reducing maintenance costs, cutting down-time, boosting production. And oil cups fortunately *cost very little*.

Gits oil cups have been the standard for industry for more than 40 years. Gits Bros. has the largest selection of oil cups available anywhere. Call on Gits Bros. for a prompt, efficient solution to your lubrication problems.

Write for free Price Guide Catalog

GITS BROS. MFG. CO.

1865 S. Kilbourn Ave.

Chicago 23, Ill.



around the world, it's
HOOVER BALLS

made of

CHROME STEEL • CARBON
STEEL • STAINLESS STEEL
BRASS • BRONZE AND
MONEL METAL

"America's Foremost Ball Manufacturer"

HOOVER BALL and BEARING CO.
Ann Arbor, Michigan

(Continued from page 222)

Pressure can be set for measuring such resilient materials as rubber, fabric, plastic, etc., as well as metals. Brown & Sharpe is at Providence 1, R. I.

No. 118—For further information see page 19

Die Casting Machine



A new one pound capacity zinc alloy high speed die casting machine, Model M55 A/HF-1P, has been placed on the market by DCMT Die Casting Machine Corp., 164 Duane St., New York 13, N. Y. The die caster utilizes the new principle of fast chill and high cycling speed on low cost small single impression dies. An average production of 500-700 shots per hour can be maintained on the machine, according to DCMT. Die sizes up to 6" x 9" can be used. Small prefabricated die blanks are supplied with the machine and cavities can be machined directly into these blanks, making for great savings on production runs as low as 2000 pieces.

No. 119—For further information see page 119

Attendance Time Recorder

Considerable savings in time and money in time card preparation and computation through use of the IBM attendance time recorder have been reported by International Business Machines Corp., 590 Madison Ave., New York 22, N. Y. Front printing of the card eliminates the necessity for typing, addressographing, or writing name, number and other information on both sides of the card and cuts in half the time required for time card preparation. Conspicuous marking of all irregularities saves almost 19% of time required for time card computation. Continental typewheels (0-23 hours) and decimal typewheels make it possible to figure time cards by direct subtraction. Trigger trip eliminates use of bars or levers to operate the machine.

No. 120—For further information see page 19
(Please turn to page 228)

If You

SULFONATE

...You've Got Problems

JUST CHECK THEM OFF



☐ Time-consuming stratification step.



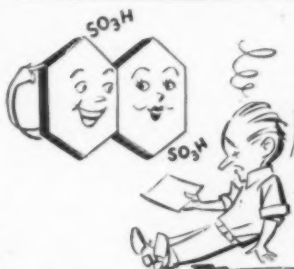
☐ Solvent losses during extractions.



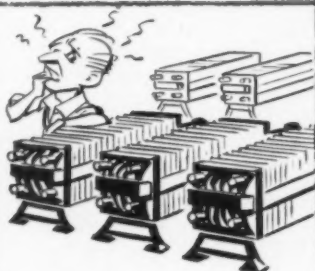
☐ Batches too small.



☐ Organics resist conventional sulfonations.



☐ Wrong isomers formed.



☐ Filtration of sulfate sludge.



☐ Spent acid disposal.



☐ Corrosion from by-product HCl.

If you want to solve them, use

Sulfan*

BASIC CHEMICALS



FOR AMERICAN INDUSTRY

General Chemical SULFAN, stabilized sulfuric anhydride, has helped many manufacturers solve their sulfonation problems. Its advantages and economies are evident in producing detergents, dye-stuffs, pharmaceuticals, textile wetting agents, organics, plastics and other products.

You may find it has much to offer in your operations too. To study its benefits, draw upon the special application data General Chemical has available for various processes. A confidential letter outlining your special problems will enable us to compile material of greatest immediate value to you. Write today to—

Product Development Department

GENERAL CHEMICAL DIVISION

ALLIED CHEMICAL & DYE CORPORATION

40 Rector Street, New York 6, N. Y.

Offices in Principal Cities from Coast to Coast

*"Sulfan" is General Chemical's registered trade-mark for liquid sulfur trioxide.



**"Drive thy business —
let not that drive thee."**

—Ben Franklin's Almanac, 1757

These days thee must work a month for the taxgatherer before thee begins to work for thyself. Keep a firm hand on the wheel of savings to bolster thy "nett after taxes."

—Acme Steel's Notebook, 1950

How long, Mr. Comptroller, since you broke "Miscellaneous" down into its multitude of sins? Do it—and you may uncover profit leaks that are subtracting real money from the profit column.

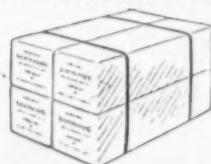
Most companies find plenty of such leaks to plug in packaging, shipping and materials handling operations. Acme salesengineers are specialists in finding these leaks—then plugging them. In 9 out of 10 cases, we can point the way to greater efficiency and good, solid thrift with Acme Methods and Acme flat steel strapping, Acme stitching machines and wire, and other Acme Steel products.

We have already proved this for the more than 50,000 customers we now serve. Two specific cases are reported here. It takes just a minute to read them and call us in.

Acme sales engineers, technical facilities and nationwide service are ready to start helping you. Reach for the telephone and call the Acme Steel service office nearest you. (There are 46 of these offices in the principal cities of the U. S. and Canada.) Or send the coupon for details on your special field.

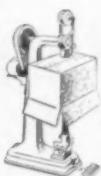


You're invited to watch us roll out the strip steel when you're in or near Chicago. Our rolling mills at Riverdale, Illinois, covering more than 1,700,000 square feet, house one of the largest, fastest strip steel operations in the world.



Old Way: \$4.01 express charges
Acme Steel Way: \$2.26 " "

Cash Saving \$1.75 per bundle
By bundling 4 cartons with Acme Steelstrap, instead of shipping separately, Exola Products, Inc., of Los Angeles, cut shipping costs 43%.



Materials cost
cut 87%
Time saved 30%

Yes, and production was increased, too, and stronger, better-quality packaging achieved when B&T Metal Co., Columbus, Ohio, put Acme Silverstitchers to work on their packaging problem.

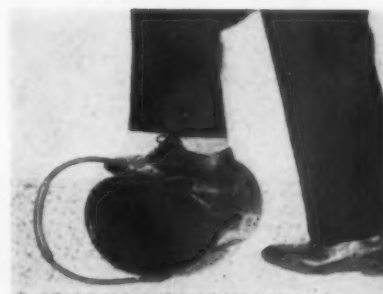
Fork Truck



Fast action handling loads weighing up to 4000 lbs. features a new model medium-weight electric power fork truck of Elwell-Parker Electric Co., Cleveland, O. In tiering operations the truck lifts to a base height of 130" in 26 seconds. Going up light the fork attains the full height in 15 seconds and lowers a capacity load from the same height in 16 seconds. Travel speed on straightaway with full load is 5½ mph. Lift cylinder is above vision point when load is elevated. The truck's overall length with 36" fork is 116"; width 41"; height with uprights telescoped 83". Turning radius is 74" in intersecting aisles; 134" in right-angle aisles.

No. 121—For further information see page 19

Unbreakable Pail



A 3-gallon chemical pail that is said to be practically indestructible and which will handle any type of corrosive solution has been introduced by American Hard Rubber Co., 11 Mercer St., New York 13, N. Y. The pail is made of Ace-Hide, a tough, resilient, high-styrene, copolymer rubber that provides a good combination of light weight, corrosion resistance and strength. The pail will not chip or crack, and is easy to clean, because chemicals

(Please turn to page 231)

ATTACH THIS COUPON TO YOUR BUSINESS LETTERHEAD

ACME STEEL COMPANY, Dept. P-60, 2838 Archer Avenue, Chicago 8, Illinois
We manufacture _____ . Please send me booklets on Acme Methods checked.

- ☐ Please have sales engineer call.
☐ **Packaging, Shipping, Materials Handling**—
"Savings in Shipping" tells how to save money and safeguard customer good will with Acme Steelstrap.
☐ **Shipping (Carload and L.C.L.)**—"Acme Unit-Load"—The story of reduced damage claims and better handling for shippers.

- ☐ **Bag and Box Assembly**—"Profit by Stitching" demonstrates cost-cutting Acme Silverstitchers and Acme-Champion Stitchers.
☐ **Product Assembly**—"Acme-Morrison Metal Stitchers"—for savings in fastening metal-to-metal or metal-to-other materials.
☐ **Book Assembly**—"Acme-Morrison Book Stitchers"—for savings in the graphic arts field.

NAME _____ POSITION _____
COMPANY _____
STREET _____
CITY _____ ZONE _____ STATE _____

ACME STEEL CO.
CHICAGO

ACME STEEL CO.
CHICAGO

Another New Application of Die Casting



EVERY *Color* OF THE RAINBOW IN ANODICALLY
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another development by Doehler-Jarvis Research. They offer an opportunity to beautify your product. We invite you to submit your development problems to our Research Department.



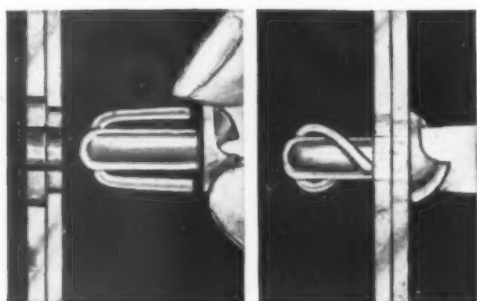
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The World's Largest Producer and Finisher of Die Castings

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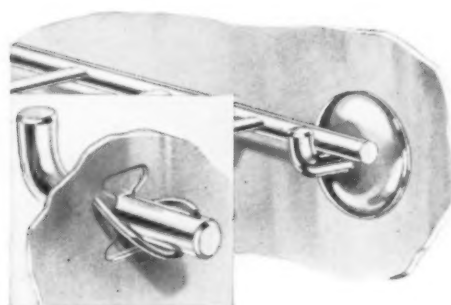
EXECUTIVE OFFICES: 386 FOURTH AVENUE, NEW YORK 16, N. Y.

Have you a similar use for this 1-piece fastener?



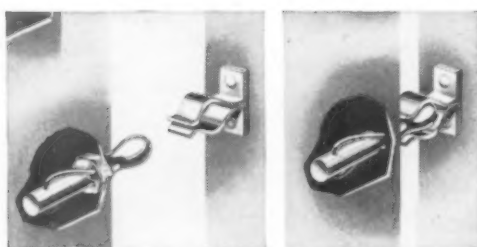
It's a Blind Rivet

... Or a removable fastener. It locks and unlocks with a 90 degree clockwise rotation. No mating parts such as nuts or receptacles are required.



It's a Shelf Support

... For ranges or refrigerators. Leading appliance makers have achieved substantial installation savings through the use of both metal and plastic Spring-Locks.



It's a Cabinet Door Strike

... Simple to install, eliminates welding and cuts assembly cost. Any head can be designed without affecting the fastening principle, in both metal and plastic.



What's Your Application?

... Tell us how you can use Spring-Lock Fasteners in your products. We'll be glad to work out the details for you. A variety of standard shapes and sizes are available.

Millions of these ingenious Spring-Lock Fasteners are used in electrical, automotive, railroad, aviation and household appliance industries. Design engineers marvel at their utility and flexibility.

Write today for literature and free samples.

SIMMONS FASTENERS

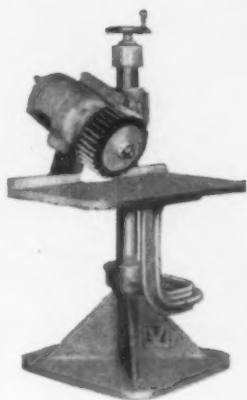
Simmons Fastener Corp., 1743 N. Broadway, Albany 1, N. Y.

SPRING-LOCK • QUICK-LOCK • ROTO-LOCK

(Continued from page 228)

cannot penetrate the impervious surface. It features a pouring spout that is claimed to virtually eliminate drip. It pours an easily directed stream, making it possible to pour directly into narrow-necked vessels.

No. 122—For further information see page 19



Vonnegut Moulder Corp., 1819 Madison Ave., Indianapolis 25, Ind. has developed a new spindle stand that is universally adjustable. Designed for finishing and polishing work which is to be pushed across a table by hand or by power feed, the stand's motor can be turned to point the spindle straight up, straight down and through all of the 180° between these extremes. It has 20" of vertical adjustment and also 5" adjustment lengthwise of the spindle. With this combination, Vonnegut points out, a head can be brought into proper relation with any surface of any pattern when the spindle stand is located next to a feed bed or table on which the work pieces are being advanced.

No. 123—For further information see page 19

Slab Mills

The Nelco Tool Co., Inc., Manchester, Conn., has added standard carbide tipped slab mills to its cutter line. Manufactured in a wide range of sizes, they are available in Nelco series 300 for use on cast iron, brass and bronze, and Nelco series 400 for aluminum, magnesium and similar metals. All tools are spiral tooth design with such features as slash milled carbide tip seats and nickel shim brazing. Nelco claims that the slab mills, when properly applied, will perform operations usually done with a shell mill or face mill, and produce more pieces per grind as well as consume less power. Higher table feeds can also be used, Nelco states, thereby producing more pieces per hour.

No. 124—For further information see page 19

(Please turn to page 234)

RIG IT IN 5 seconds!

AMERICAN HEAVY DUTY UTILITY SNATCH BLOCK



Swing the hook...



Open hinged plate... lay in the line



Close hinged plate... block locks itself!

Here's a snatch block any man can rig in 5 seconds... without a wrench! No loose parts; nothing to drop or lose. Available in 6", 8" and 10" sheave diameters. Sold by distributors everywhere. For catalog showing all wire rope blocks—1½ to 250 tons...

MAIL THIS COUPON

American Hoist

& Derrick Company
St. Paul 1, Minnesota

● Please send catalog on AMERICAN UTILITY SNATCH BLOCKS.

NAME _____
COMPANY _____
ADDRESS _____
CITY _____ ZONE _____ STATE _____

Lower Your Carbide Grinding Costs

with
CRYSTOLON WHEELS
in the New K-Bond

A faster and freer cutting action combined with greatly increased uniformity in grinding action — this is what you get with the new Norton K-Bond, a new vitrified bond for CRYSTOLON grinding wheels both green and gray. The high rate of stock removal and the cool cutting action of the new K-Bond speed up the grinding operation and help eliminate spoiled tools — thus they reduce the over-all grinding costs.

Also, the Norton K-Bond has brought about a new standard of uniformity to vitrified bonded silicon carbide wheels. These products can now be controlled to such a degree of accuracy as to make it possible to produce wheels of half grade increments of hardness. Thus Norton wheel specifications can be "pin-pointed" to suit the individual requirements of your carbide grinding jobs.

In plant after plant, the new K-Bond CRYSTOLON wheels are showing remarkable results. You will want to try them, too.

NORTON
ABRASIVES



by following the **NORTON** way

with

DIAMOND WHEELS *in Vitrified, Resinoid, and Metal Bonds*

FOR the plant that is grinding carbide tools in any appreciable quantity, diamond wheels are unquestionably the most economical because of their faster cutting action and longer life. And with Norton diamond wheels this is especially true because the three types of bond make it possible to supply exactly the right wheel — the most economical wheel — for each job.

Vitrified Bond — combining a fast cutting action with long life it is outstanding for sharpening single-point tools. It is also popular for chip breaker wheels $\frac{1}{4}$ " or more thick.

Resinoid Bond — first choice for all fixed feed operations such as surface and cylindrical grinding and the sharpening of multi-tooth cutters; also used for thin chip breaker wheels.

Metal Bond — used for sharpening single-point tools when maximum wheel life is the first consideration; also in cut-off wheels for cutting carbide blanks.

W-1301

A 140-page, newly revised
handbook on carbide
grinding—free on request.
Ask for Form 167-D-2



Making better products to make other products better

You can do a lot



with a little

GOLD SEAL TAPE

You can talk all you want to—Gold Seal is the best buy in tape. It sticks to the job. Laboratory control of production assures lasting "tack" in the friction compound. And it goes further. There's more tape value in every roll because there's no waste. In 10-roll cartons and single rolls—each roll cellophane-wrapped for factory-freshness. Jenkins Bros. (Rubber Div.), 100 Park Ave., New York 16, N. Y.



Gold Seal Tape
FRICTION and RUBBER TAPES
MADE BY JENKINS BROS.
MAKERS OF FAMOUS JENKINS VALVES

Washroom Fixtures

In line with the current architectural trend toward recessed fixtures, Scott Paper Co., Chester, Pa., has developed plans for a combination paper towel dispenser and waste receptacle for installation in washrooms in factories, offices, plants, public buildings, etc. The plans call for a towel cabinet recessed flush with the wall with the towels dispensed at convenient shoulder level. Below the cabinet at waist-level is the recessed waste receptacle. Dimensions of the unit are: 14" wide; 6'2" high; 7½" deep.

No. 125—For further information see page 19

Sweeper Magnet



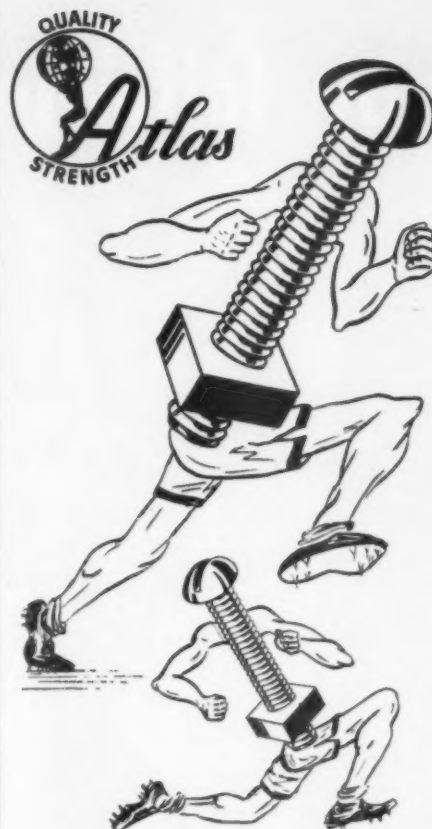
A low-cost permanent magnetic device for sweeping up or retrieving ferrous material from floors, parking lots, dock areas, driveways, etc., is offered by Eriez Mfg. Co., Erie, Pa. The magnetic tube rotates through 360°, presenting the greatest possible surface area for collection. The unit works like a carpet sweeper, with the tube mounted between Neoprene wheels. Ferrous material attaches itself to the magnet and spreads over the circumference to a thickness of about ¾". To unload, wiper ring is pushed from one end of the tube to the other, where a non-magnetic section causes the load to be released. Available in sizes from 12 to 36".

No. 126—For further information see page 19

Socket Cap Screw

A button head socket cap screw is a new product of the Holo-Krome Screw Corp., Hartford, Conn. Completely cold forged, the button heads have thin heads which give clean lines and lower protuberance. Holo-Krome says this feature is an advantage when countersinking for flat head screws, or when countersinking for standard pattern cap screws is impractical in product design. Another advantage claimed is the ability to retain the true hex shape, well defined corners and smooth taperless walls of the sockets without deformation under repeated tightening and loosening.

No. 127—For further information see page 19



**YES, We Handle
Short Runs, Too
—As Well As Long Ones**

And just as carefully. Whether you order one gross or a million you can be sure that ATLAS Fastenings—Bolts, Nuts, Screws and Washers, in all types of metals—in your product will never cause a reject. . . .

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All of them

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and breadth of the land!

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that express our responsibility as the world's largest manufacturer of safety equipment.

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and well-stocked Warehouses at*

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San Francisco
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Tulsa

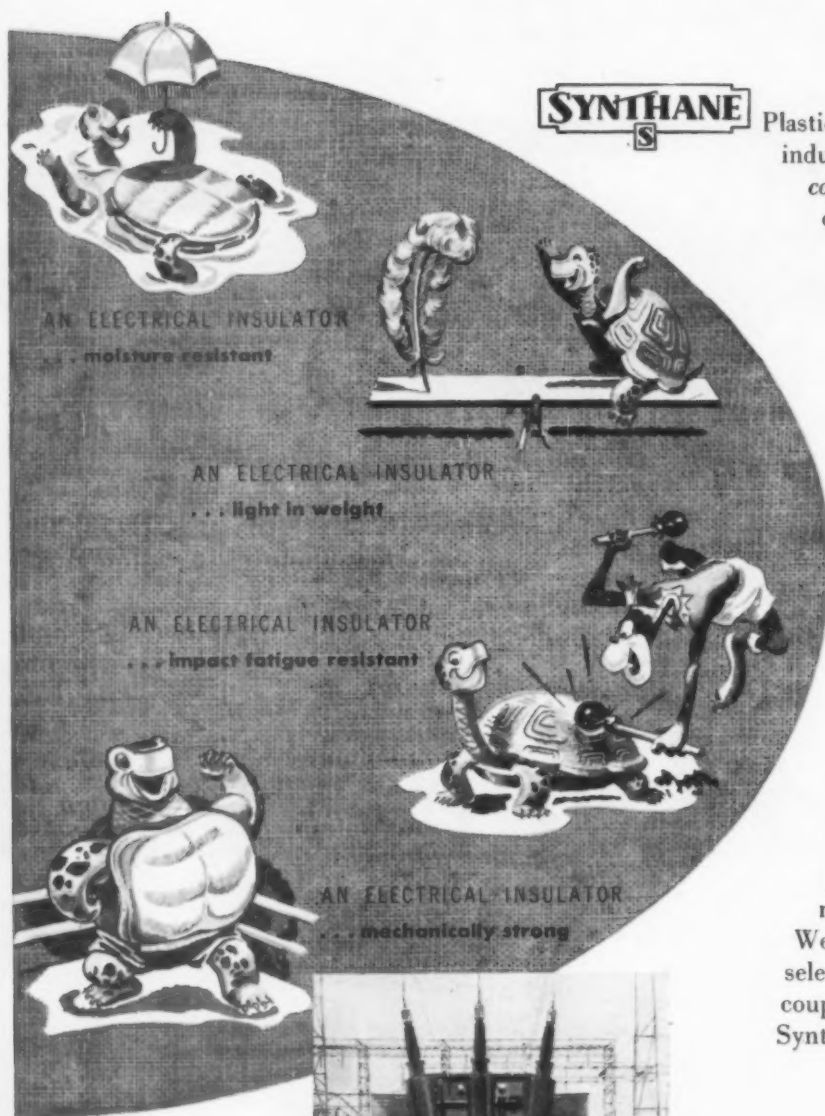
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at the Inform-A-Show
BOOTH 69
Cleveland Auditorium
June 11 to 14, 1950

MINE SAFETY APPLIANCES COMPANY

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MINE SAFETY APPLIANCES CO. OF CANADA LIMITED · Toronto, Montreal, Calgary, Winnipeg, Vancouver, New Glasgow, N.S.

Plastic Laminates that Insulate—May



SYNTHANE

Plastic Laminates are materials expressly made for industrial applications. They have an interesting combination of electrical, mechanical and chemical characteristics. This combination often stimulates new ideas in design or use, may improve a product or process or reduce fabrication or maintenance costs.

Synthane is an excellent electrical insulator. Synthane is high in dielectric strength, low in dielectric constant and power factor. It is also light in weight, hard, dense, strong, resistant to abrasion, corrosion and moisture, and is dimensionally stable.

Synthane speeds fabrication.

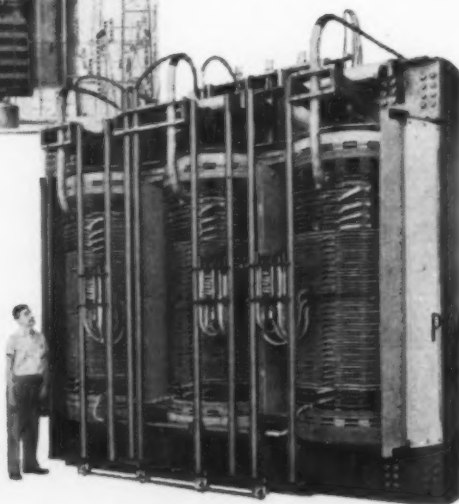
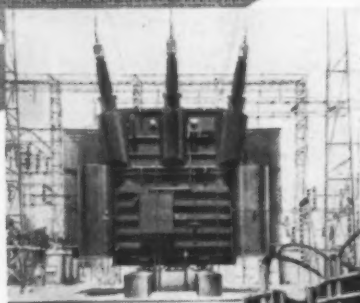
Synthane laminated can be machined quickly and easily on standard production equipment or we will fabricate for you. It is also available from us in a variety of molded-laminated or molded-macerated shapes. These are only a few of many Synthane advantages.

Let us help you plan with Synthane. If you are designing a new product or have a materials problem, write and tell us about it. We will be glad to help you with design, grade selection, or fabrication of parts. Clip and mail the coupon today for your free copy of the complete Synthane catalog. Synthane Corporation, Oaks, Pa.

SYNTHANE

AT WORK IN INDUSTRY

The Moloney Electric Company selected Synthane for parts of the transformers it produces, because of Synthane's excellent electrical insulating ability, good structural strength and corrosion resistance. Shown at right is the Moloney 33,333 kva, three-phase, 60 cycle 132000 volts Delta high voltage to 34500Y/19920 volts low voltage. The complete unit weighs approximately 227,000 pounds.



PLASTICS WHERE PLASTICS BELONG

DESIGN • MATERIALS • FABRICATION • SHEETS • RODS • TUBES

Stimulate new ideas for You



What else do you look for in an insulating material? Light weight? Strength? Resistance to moisture, corrosion and wear? Dimensional stability? Ease of machining?

Synthane is made in a variety of grades. Each excels in one or more particulars. Each offers a *combination* of useful qualities.

Grades are classified according to the base materials used in them. Paper, cotton, glass fabrics, and asbestos are some of the materials we laminate to produce Synthane. Various resins are used.

At the right are four applications. In each, a different grade of Synthane is used. In each, Synthane gives the manufacturer and his customer a better material because the essential properties are supplemented by a *combination* of other valuable characteristics.

SYNTHANE

S

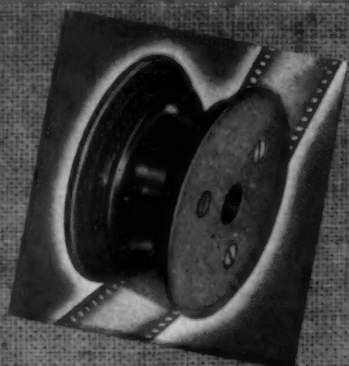
WHERE SYNTHANE BELONGS

MOLDED-MACERATED • MOLDED-LAMINATED

JUNE, 1950

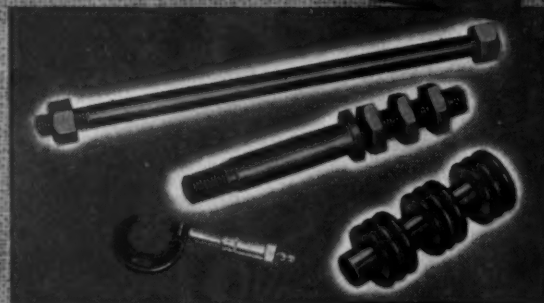
Want Additional Product Information? See Page 19.

Film Carrier for use in developing solutions. Fabricated from a grade of Synthane resistant to corrosion. The grade selected has the added advantages of mechanical strength and ease of machining.



Tip Insulators for Welding Electrode Holder. The requirements for electrical insulating ability are resistance to heat and impact fatigue, and, for long wear, toughness.

Automobile Water Pump Seal Washer. Moisture resistance, ease of machining and good wear resistance are essential advantages of the grade used for this part. Additional advantages are light weight and dimensional stability at comparatively high temperatures.



Power Shovel Parts. Electrical insulating ability and mechanical strength are the properties most needed in this application. The grade selected is also wear resistant, easily fabricated to precise dimensions, and can be impregnated directly over metal cores for extra strength.



SYNTHANE CORPORATION

7 River Road, Oaks, Pa.

Gentlemen:

Please send me, without obligation, information on sheets, rods, tubes and fabricated parts.

Name

Company

Address

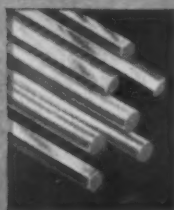
City Zone State



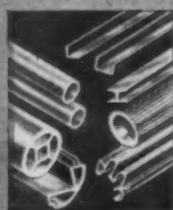
Pig, Ingot,
Extrusion Ingot



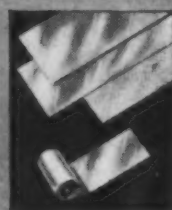
Wire, Rod
and Bar



Screw Machine
Stock



Extrusions,
Structurals



Coil, Sheet, Plate
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Remember, aluminum is not a luxury metal but the logical material for improving the

quality and sales appeal of your products. And you get three times the metal in every pound. Savings in fabrication, finishing and shipping are frequently possible too. Get acquainted with your dependable Reynolds Distributor. Let him show you how aluminum can save you money, serve you better.

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Bramley-Denaldson (Ingots only),
Huntington Park (L.A.)
W. F. Heine Supply Co., (Architectural
Shapes) Oakland

Richard G. Stern & Co.,
Los Angeles

Tay-Holbrook, Inc.,
San Francisco

Union Hardware & Metal Co.,
Los Angeles

United States Steel Supply Co.,
Los Angeles and San Francisco

Western Metal Supply Company,
San Diego

COLORADO

Marsh Steel Corporation,
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CONNECTICUT

American Steel & Alloys Corp., Hartford

FLORIDA

Horne-Wilson, Inc., Jacksonville,
Orlando, Miami and Tampa

Southern States Iron Roofing Co.,
Jacksonville and Orlando

GEORGIA

Southern States Iron Roofing Co.,
Albany, Atlanta and Savannah

IDAHO

Idaho Steel Products, Inc.,
Boise

ILLINOIS

Silverstein & Pinsel Inc., (Ingots only)
Chicago

United States Steel Supply Co.,
Chicago

Benjamin Wolf & Co., Chicago

INDIANA

Brass & Copper Sales Co.,
Indianapolis

KENTUCKY

Southern States Iron Roofing Co.,
Louisville

Neill-LaVieille Supply Co., Louisville

LOUISIANA

Southern States Iron Roofing Co.,
New Orleans

MARYLAND

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structurals) Baltimore

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Baltimore

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Arthur C. Harvey Company, Boston

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structurals) Worcester

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Kasle Steel Corporation, Detroit

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Hattiesburg

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Brass & Copper Sales Co.,
Kansas City and St. Louis

Marsh Steel Corporation,
N. Kansas City

NEW JERSEY

Edgcomb Steel Corporation, Hillside

NEW YORK

Bent, McCarthy & Rogers, Inc.,
Buffalo

Edgcomb Steel Corporation,
Hillside, N. J.

Rochester Smelting & Refining Co.,
(Ingots only) Rochester

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Southern States Iron Roofing Co.,
Raleigh

OHIO

The Atlas Metal Co., (Ingots only)
Cleveland

Hamilton Steel Company, Cleveland

Mutual Manufacturing & Supply Co.,
Cincinnati

Summer & Company,
Columbus

OREGON

American Steel Warehouse Co.,
Portland

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Colonial Smelting & Refining Co.,
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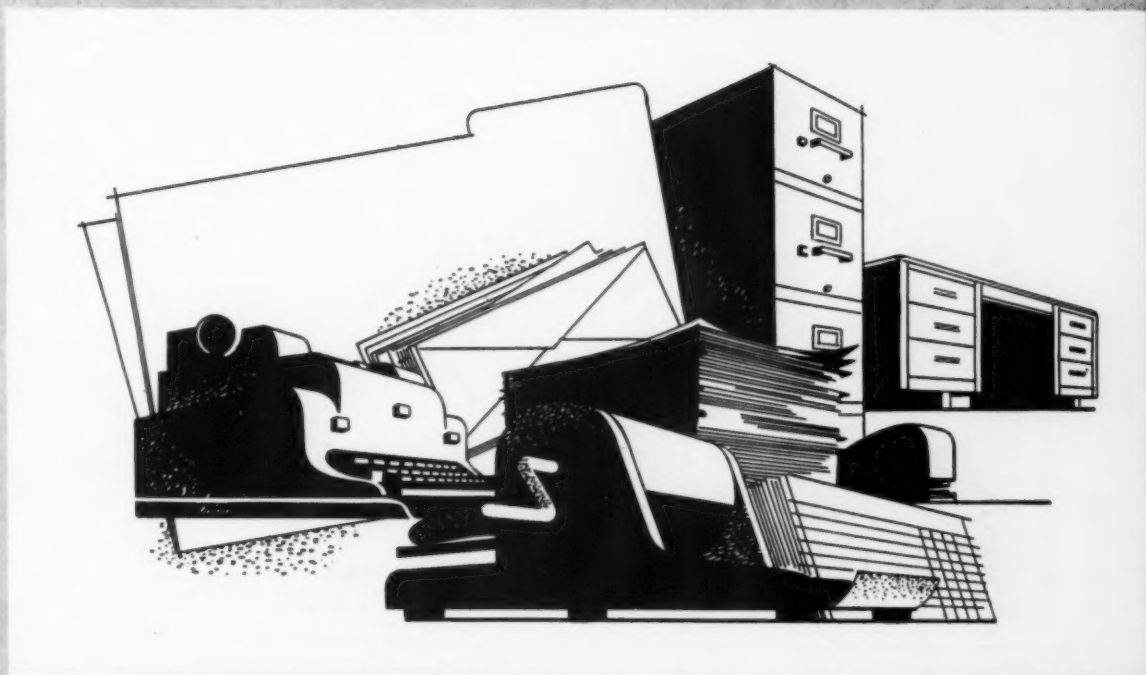
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JUNE, 1950

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Rent any type system from American Dictating Machine Co., Inc. The Rental Fee (which includes Delivery; Installation; Demonstration; and all necessary care or instruction) is only \$35 for one month, complete! If the equipment is purchased, we deduct the rental, in full, from the purchase price, thereby giving you a 30 DAY FREE TRIAL! Our One Year Unconditional Guarantee starts from the actual date of purchase.



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Soundscribe or Audograph
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If you already own or use Dictating Machines you can reap additional profits by purchasing your Cylinders, Discs, Wire Spools, and all other supplies from American. Compare these prices:

Cleartone CYLINDERS 50¢ ea.
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Cleartone DISCS for Gray 6 5/8" \$8 per hundred
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235 FIFTH AVENUE (27th St.) New York 16

ESTABLISHED 1923

MURRAY HILL 4-3554

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United Air Lines

SIX-figure savings—\$100,000 annually, \$250,000 annually, and \$78,750 on the annual cost of delivering bills, down to a saving of \$78. on one job made possible by the use of an electric typewriter, are among the highlights of profitable investment in modern office equipment, machines and supplies featured in the following pages.

The large direct savings in costs and the increased efficiency and accuracy made possible by the new business machines and other types of office equipment are evidenced everywhere they are in use. The results are in marked contrast with the general feeling that the office is a poor place to seek economies. The increased efficiency, accuracy and improved morale that are gained by modern desks, filing equipment, and simple office machines, of themselves amply justify expenditures for replacement of obsolete furnishings.

Often referred to as the tools of the office, such common things as printed forms may be a source of waste, inaccuracy, and duplication of clerical effort. Huge savings have been made by large companies—savings running well into six figures, by forms study and analysis, and the creation of forms and systems better adapted to a specific and requirement. In conjunction with modern office equipment they have speeded

Electrically operated office machines expedite office work and make for accuracy

New types of desks, filing systems, and manual equipment increase administrative efficiency

Case histories reveal that savings in six-figure group follow modern equipment installations

operations, inaccuracies and errors eliminated, and clerical forces have been materially reduced.

The modern office is as highly mechanized and as dependent upon electricity, comparatively, as the manufacturing division of the plant it heads. There are electrical typewriters, dictating and transcribing machines, duplicating equipment, interplant communication systems, adding and calculating machines, and electrically operated rotary card files. The electronic calculating machines, punched card systems, and other types of electronic equipment perform unbelievably complicated statistical and report work. In addition there is wide variety of manually operated equipment to help increase production and efficiency and lower costs.

Management is directing more attention to office operations, in the

realization that a thorough analysis may reveal opportunity to eliminate waste and lower administrative costs. It is recognized that office procedure is not an exclusive thing unto itself, and that simplification, and improved timing and accuracy in office work often has a direct bearing on the efficiency of activities in plant operations. In similar vein, corresponding high efficiency in plant office operations, materially influences operations in the main office, from purchasing and sales to accounting and the deliberations of the board.

The case histories of savings made possible by modern installations that appear in the following pages, attest that such equipment, like modern machine tools and other plant equipment, paves the way for substantial economies so essential in meeting today's high breakeven points.

Office Equipment



Blueprint Control Saves \$100,000 Annually

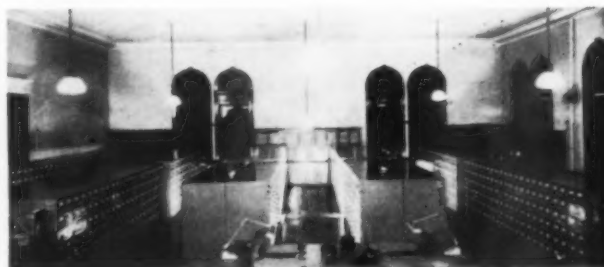
Overall system for processing engineering data has cut blueprint costs more than 50%—as compared, project for project, with wartime figures, according to Robert B. Smith, Manager, Office Management-Reproduction Section, Glenn L. Martin Co., Baltimore, Md. The control system is saving blue printing overhead at the rate of better than \$100,000 annually. The sheer saving in paper, since the new system became operative, approximates more than 2½ million square feet. Present output is about 400,000 prints a year, and assuming the same level of manufacturing activity, would have amounted to 1,000,000 prints during the war.

COST SAVING ITEM—432

Speed, Accuracy, and Increased Efficiency

Approximately 1,000,000 credit files are maintained by the Commercial Rating Company, St. Louis, Mo. Illustration shows section of filing cabinet division where fast tempo operations are the rule especially in connection with telephone inquiries. The ease of operation of the cabinets and their general mechanical efficiency have proved their role in expediting accurate information. This system along with modern, attractive steel desks and equipment, combine to make for high efficiency among the employees.

COST SAVING ITEM—433



Punched Card Accounting Machines Save \$100,000 Annually

A large locomotive works estimates that changing from manual methods to the use of electric punched card accounting machines for hourly payroll preparation and other accounting procedures has brought annual savings of approximately \$100,000. Also, many additional valuable reports have been made available and earlier monthly closings are now possible. The accounting machine equipment is also used to prepare labor distribution reports, purchase and expense distribution reports, Federal and state tax reports, direct and indirect labor and material cost reports, and inventory valuation reports.

COST SAVING ITEM—434



Office Equipment

PURCHASE ORDER

Belden Manufacturing Company
4647 WEST VAN BUREN STREET
Chicago

TO: **BELDEN MANUFACTURING COMPANY**

DATE: _____

SHIP TO: **BELDEN MANUFACTURING COMPANY**

PLEASE ENTER OUR ORDER FOR THE FOLLOWING SUBJECT TO TERMS AND CONDITIONS SHOWN HEREON:

QUANTITY	DESCRIPTION	PRICE	TAX	SHIPMENT AMOUNT

FOR FURTHER INFORMATION CONCERNING THIS ORDER PLEASE WRITE OUR MR. _____

ACKNOWLEDGMENT—Within three days after receipt of this order, please return acknowledgment, stating definite date of shipment and date of receipt of goods.

PAGING LIST—Please specify the quantity, number of sheets, and other details of each page.

INVOICES—Invoice separate invoices for each date together with bill of lading for each shipment made on this order the same day goods are shipped.

IDENTIFICATION—Write across order number on all invoices, bills of lading, or express receipts and packages, together with description of our T number.

Belden Manufacturing Company

CHICAGO - ILLINOIS

New Purchase Order Form Eliminates Copying Errors

This is new Purchase Order and Receiving Report form used by purchasing department of Belden Manufacturing Co., Chicago. It is a nine-part form with the following distribution: Original and acknowledgment copy for supplier; follow-up copy with sections on lower part and reverse for expediting record, invoice record, and receiving record; cost department; receiving; purchasing department; inventory control; material identification; and, receiving department record. Assistant Purchasing Agent A. E. Carney states that while it is more expensive than form previously used, it more than pays for itself through saving in writing time by the receiving department and elimination of copying errors.

COST SAVING ITEM—435

Estimated Savings \$250,000 Annually

Installation of forty all-electric, fully automatic adding machines, and a new system comprising a posting bookkeeper and a proving bookkeeper, by the American Trust Company, San Francisco, is estimated to have resulted in savings of \$250,000 annually. The new accounting method which the bank worked out with the machines gives it the savings of single posting plus the accuracy of machine proving.

COST SAVING ITEM—436



Electric Typewriters Increase Production 10% to 40%

Life Office Management Association in a study among 34 life insurance companies on the Use and Advantages of Electric Typewriters, reports that some of the companies realized production increases ranging from 10% to 40% depending upon the type of work being performed. Seven companies with an average of 11 machines per company realized a 10% increase in production in general correspondence. One company with 11 electrics had a 40% increase in production of group certificate typing. The sales department of one company replaced two typewritten and one hand written forms with a single 11-part form prepared on an electric typewriter.

COST SAVING ITEM—437

Office Equipment



Manual Preparation Costs Cut 45%

The Pullman Company, which has issued 500 copies each of 13 maintenance instruction manuals (250 pages) during the last two years, has nearly halved its previous costs by preparing plastic offset plates in its own offices. Manual pages are illustrated by draftsmen on direct image plates, then vari-typed for copy. Plates are exposed in minutes in compact vacuum cabinet. Corrections are made on plates with pencil eraser. Plates may be re-run.

COST SAVING ITEM—438

Plastic Plates Save \$5,000 Annually On Form, Letter Printing

American Surety Group, with 33 branch offices, issues similar form letters with names of resident officers changed on letterhead used in each territory. Standing type, resetting, 37 makeup changes are eliminated by stripping patented "paper negative" of copy change to master film negative of body copy. Clerical help makes photographic plastic plates, multilith forms, letters and promotional mailings. By preparing own plates, using office-size vacuum-making cabinet, annual savings of over \$5,000 were achieved first year of using method.

COST SAVING ITEM—439



Calculator Speeds Industrial Cafeteria Checking

Use of an accounting machine that prints "answers" on a tape in Fairfax industrial cafeteria, Baltimore, speeds checking over manual punching of checks, and furnishes printed list of the items making up the total. Use of the electric figuring machine allows present personnel to handle a 40% increase in lunches served. Losses account items not charged under hand-punching of checks are virtually eliminated.

COST SAVING ITEM—440

Office Equipment



Calculator Makes for 25% Work Increase in Eleven Activities

Average 25% increase in amount of work accomplished in eleven major calculating activities, was the result of installation of modern new calculator for figure work production by chain organization. Types of calculating work included accounts payable and receivable, payroll work, stock turnover averages, statements percentagewise, stock ratio average work, checking monthly inventories of 118 units, etc. The installation paid for itself in a relatively short time.

COST SAVING ITEM—441

Liquid Duplicator Makes Copies 12 Times Faster

Electric liquid duplicator in office of The Standard Steel & Wire Corporation, Chicago, makes it possible to issue copies of stock list revisions, price lists, etc., twelve times faster than when work was done by typists. About 15 minutes time is now required to type a master stock list, or other forms, and 100 copies are reeled off the duplicator in a matter of minutes. Formerly, five hours were spent by typist making copies required. Duplicator makes for time-saving, material saving, and assurance that copies are identical with master. Legible forms are also turned out 12 times faster than by former methods.

COST SAVING ITEM—442



Inventory Records Machine-Posted in 15 Seconds

Actual survey clocked less than 15 seconds per entry for machine-posting inventory records at the Dayton (Ohio) Power & Light Co.—viz, adjusting posting media to show next line, finding 5 x 8 inventory card, inserting card in posting machine, posting card, removing card and refiling in electrically operated rotary record file. This file enables the operator to get maximum production out of posting machine by providing efficient facilities for finding, removing and refiling ordinary card records on any grade of paper. Six files are used for average of 25,000 cards.

COST SAVING ITEM—443



Office Equipment



Billing Work Reduced 60%

The Firth Carpet Company's six-part $8\frac{1}{2}$ " x 7" invoice, and three-part $11\frac{3}{4}$ " x 14" journal are now written simultaneously and continuously by means of dual feed attachment to electric typewriter. The marginal punched continuous forms are automatically fed and aligned. Automatically, typed matter is positioned exactly in the intended spaces on the two different forms. Previously the work required two billing machines and two operators. The new system has reduced the company's billing work by 60%.

COST SAVING ITEM—444

Save \$78,750 Annually on Cost of Delivering Bills

The Pennsylvania Electric Company makes about $3\frac{1}{2}$ million meter readings each year, preparing approximately the same number of bills. With the inauguration of post card billing, the delivery cost was reduced from approximately $3\frac{1}{4}$ ¢ for paper bills to 1¢ for post card bills. Savings in delivery cost by reason of the mechanization of the billing system are placed at \$78,750 per year. Illustration shows bills, after tabulating, being fed through imprinter for imprinting, slitting, bursting and stacking.

COST SAVING ITEM—445

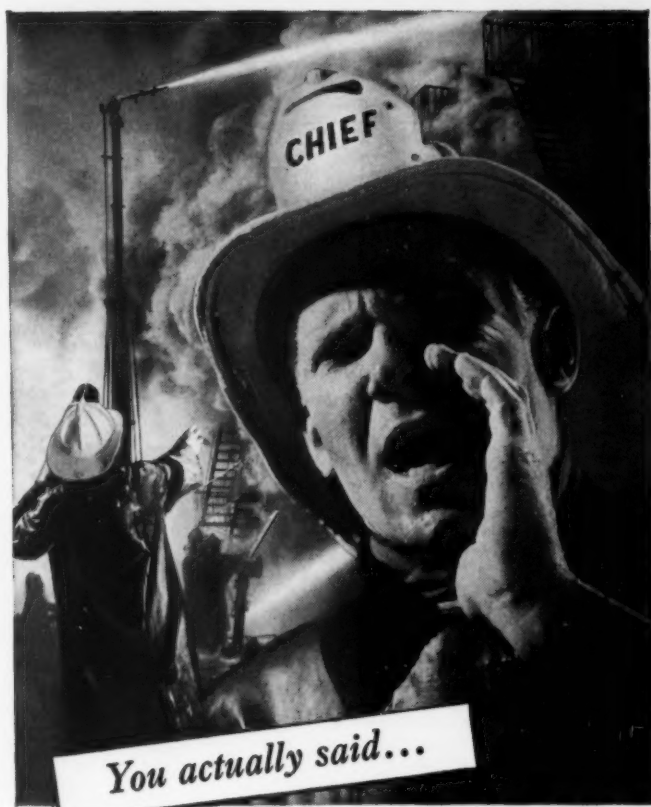
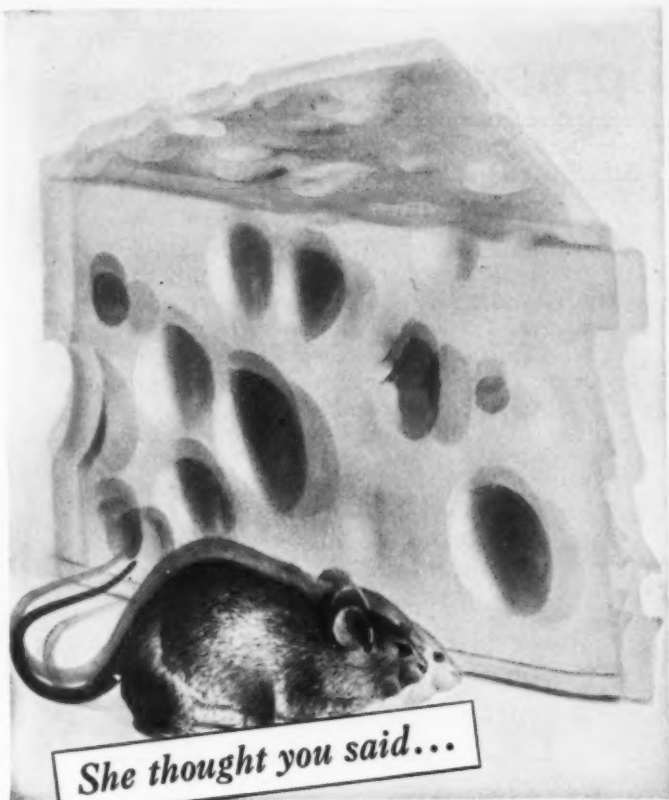


Paperwork Cut Two-Thirds Handling 400,000 Inquiries

Five-part form adopted by Youngstown Kitchens Division, Mullins Manufacturing Corp., has made it possible to cut the paperwork incident to handling 400,000 inquiries pulled by national advertising, by about two-thirds. Six typists were formerly kept busy on the job. By reason of the new form, two typists can now easily handle the work except during peak periods. Instead of farming out the overloads as before, a maximum of two additional typists now take care of the peaks and eliminate previous time-lags. Information gets into hands of dealers faster who report an increased amount of business as a result.

COST SAVING ITEM—446





But you can't mistake "CHEESE" for "CHIEFS" on Disc Edison Voicewriter

More Time Gained—More Work Done

WHEN EAR-TUNED JEWEL-ACTION GIVES YOUR WORDS "LETTER PERFECT" TRANSMISSION

How much do mistakes in written communications cost you in time, in money?

No such errors with Disc Edison Voicewriter—the instrument that adds the *understandability* of direct dictation to the *convenience* of machine dictation.

Your words arrive at their destination without error, without delay, because every sound is clearly defined.

You Save Business Time

Disc Edison Voicewriter is engineered for complete *understandability*—more by far than any other instrument.

Exclusive Ear-Tuned Jewel-Action faithfully preserves "high-frequency" sounds. Each *s*, *th*, *z*, *f* is clearly distinguished. No mistaking "three" for "free," "shell" for "sell." Your secretary gets your

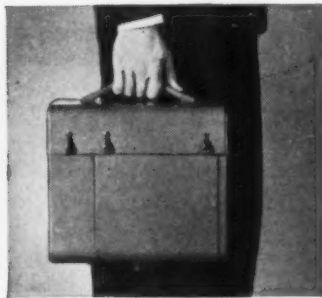
dictation "letter perfect"—saves time for you, saves time to *help* you.

No other instrument matches Edison *understandability*—only Edison has Ear-Tuned Jewel-Action.

Write us for the helpful free booklet, "Don't Work So Hard." Address Thomas A. Edison, Incorporated, 49 Lakeside Ave., West Orange, N. J.



Executives save as much as a month a year when they replace old-fashioned handling of communications with the modern Disc Edison Voicewriter. Secretaries are freed for "junior executive" duties.



Compact Disc Edison Voicewriter is expressly built for office dictation and is portable, too—but with no sacrifice of understandability.



For free demonstration, phone "EDIPHONE" in your city or write Thomas A. Edison, Incorporated, West Orange, New Jersey. In Canada: Thomas A. Edison of Canada, Ltd., Toronto 1, Ontario.

Thomas A Edison

Office Equipment

Eliminates Two Operations and Copying Errors

[illegible]

The United Felt Company, Chicago, Ill., combined its order writing and invoicing into one operation with nine-part form which has double stub feature allowing easy separation of Invoice Section and Production Order sections. The form eliminates two entire operations necessary under old system, speeds up getting orders in and out of the plant and invoices to customers, and eliminates possible errors in copying information from order to invoice as in old system. Form is made up as follows: Original invoice (upper stub) and posting and file copies; four-part Production Order section (1½" longer with bottom stub and blue pencil carbons) with file copy, Delivery Receipt and Customer's copy; then two copies of Invoice-Acknowledgment copy and Salesman's copy, attached to upper stub. Lower section of Production Order contains space below perforation for "Instructions" and "Mixture" information.

COST SAVING ITEM—447

Punch Card System Eliminates Two Clerks

Transportation company found it difficult to compile operations data required by management, and the problem became increasingly difficult with the acquisition of additional lines. Minimum installation of modern equipment for statistical work was installed, which included numerical tabulator with summary punch, automatic punch and sorter. This system handles 1,500,000 punched cards a year. It is operated at a cost of five clerical units as compared with seven clerks formerly needed. In addition it provides a great deal of analytical information that could not be furnished previously. Reports are now up-to-date, and accurate.

[illegible]

COST SAVING ITEM—448

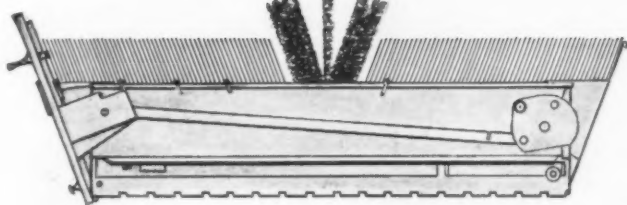


One Job on Electric Typewriter Saves \$78

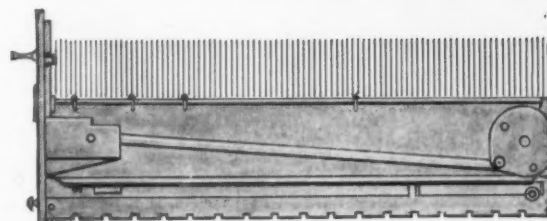
Jones & Brakeley, Inc., faced with duplicating 18-page executive speech to meet few hours deadline, found local letter shops unable to meet deadline despite cost-plus quotations of \$78. Using new electric typewriter, manuscript was retyped and 18 stencils cut by one operator in four hours in the agency's own office.

COST SAVING ITEM—449

Robot-Filer's **NEW SLANT** means low-cost filing



OPEN: Robot-Filer drawer slants open *front and back*, creates a full 7-inch filing "V", even when crammed with papers. Papers can be found with ease, quickly returned.



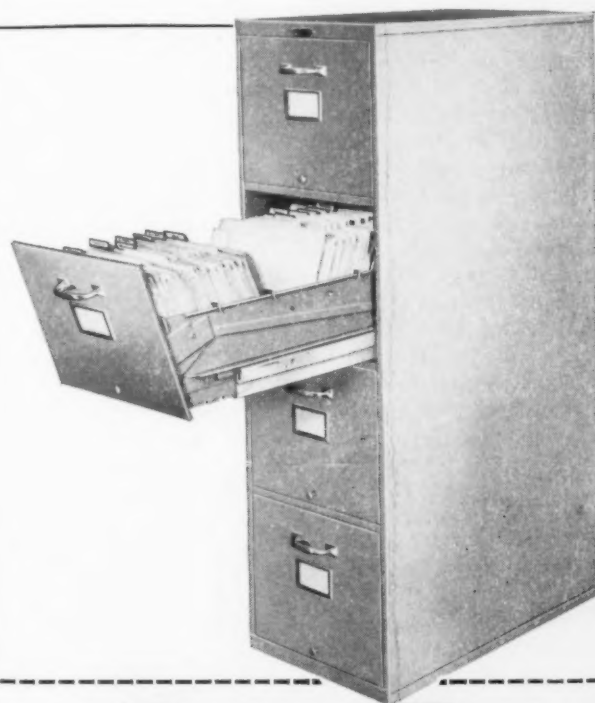
CLOSED: Back and front of drawer return to vertical *automatically*, with contents compressed. Tilting is mechanically controlled, automatic.

YOUR largest single cost in filing is *labor to operate your files*. When you make filing easier, you make it less costly.

Robot-Filer's dual-tilt control *automatically* forms a generous seven-inch filing "V" as the drawer is opened. Folders are removed or inserted without tugging or straining. Folder tabs slant toward the eye, can be read easily, even those in bottom drawers. As you roll the drawer closed, Robot-Filer's tilting mechanism *automatically* pulls in drawer ends. The front cannot remain slanted when the drawer is closed.

Robot-Filer gives a full working "V" even when crammed with papers—unlike files on which only the front drops. Folders can be selected, material withdrawn or inserted, with one hand. No space is sacrificed in the rear of the drawer to obtain the working "V". The full capacity of the Robot-Filer drawer is 26 inches. It's the *only* file drawer that provides 26 inches of usable, *workable filing space* under all conditions.

That means you can reduce the number of files you need, because fewer files do more work. See Robot-Filer at your local Remington Rand office, in legal or letter size, and in three, four, and five drawer models. The booklet, "Robot-Filer and 3-Step Filing", will give you graphic, detailed information on how Robot-Filer can help you trim filing costs. Send for it today.



MAIL TO: **Remington Rand**

Management Controls Reference Library, Room 1348
315 Fourth Ave., New York 10, N. Y.

Please send me your booklet, "Robot-Filer and 3-Step Filing"

NAME _____

FIRM _____ TITLE _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

Copyright 1950 by Remington Rand Inc.

Finding Profits in Paper Work

By J. William Sutcliffe, Secretary
Providence Washington Insurance Company



AN industrial purchasing agent once told me that the most important order he ever wrote was for the purchase control record he bought for his own administrative use. According to him, this record made his subsequent purchases more profitable for his company. This testimonial to the profit potential in office methods and equipment made excellent dollars and sense to an insurance official, for in our business we must realize profit from office purchases to stay in business.

Outside his own department, however, my friend admitted having his troubles in purchasing profitable office equipment. As he explained it to me, he had just purchased an electrified materials handling truck which was earning a profit by permitting tiering of fibre drums. Half of the warehouse floor space formerly required was saved. Yet, as he pointed out, this purchase was only an apology for the inventory control system his firm really needed.

An office system that would give my friend's management in-out-balance data, coordinated with production and sales figures, would be tremendously valuable. Costly excess stocks of raw materials and components would be eliminated, man and machine time lost in waiting for missing materials would be minimized and, most important, management would achieve profitable control of inventory turnover. In relation to savings in warehouse space, a minor value of purchase-inventory control, purchasing such a system would be so profitable as to make comparison ludicrous.

Most purchasing agents will sympathize with my friend. It is still custom to ignore the profits office equipment can produce and dwell

By use of electric typewriters, one operator produces multiple copies of 14 forms and creates permanent file. Previously, 10 separate typing, distributing and filing operations were necessary.

Case history of how creative purchasing made it possible to consolidate two departments

Nine-tenths of paper handling work eliminated, and typing station production increased 15%

Work previously required to prepare specific statistical report is fractionalized

on savings gained with new raw materials, factory equipment or production machinery. Time and motion studies which highlight possible efficiencies in assembly line procedures are either not available on office routine or get too little attention. Cost accounting on office paper work is something less than an exact science. Where management will spend hundreds of dollars to re-equip a factory work station, too high typing station costs are not subjected to work simplification analysis and are shrugged off as the evil in the necessary evil, office overhead.

No factory employee would think of specifying his working tools, but in the case of office equipment every typist and department manager will and does specify his or her working tools. Individuals request office

work saving tools, but usually in a manner that will save their own work rather than cause a new streamlined system to appear.

In addition to all that, when the purchasing agent does buy office equipment it is difficult to prove real savings. Replacement of an obsolete typewriter shows up as expense, but seldom as profit. Since the purchasing agent finds it more difficult to demonstrate his work is profitable when he buys office equipment, he can be forgiven for being somewhat less than thoroughly aware of the tremendous profits that can be realized from these purchases.

As difficult as it is to purchase management tools that more than pay their way, it is possible and it is being done every day. As Mark Twain said, "I am an old man and have known a great many troubles,

PARTS INVENTORY

DATE

PAGE NO.

REG. NO.

NAME	LOCATION	QUANTITY	CLASS	SPECIAL	ACCESSORIES	MISC.
		INV. CARD	COUNT CARD	INT	EXT	

A10386

MOTOR COACH SALES CO.

WAREHOUSE AND SHOP

ST AVENUE

KEY

Date

Customer's Order No.

Salesman

PRICE	A PARTS	B PARTS	MISC. PARTS	ACCESS.	TOTAL
-------	---------	---------	-------------	---------	-------

EMPLOYEE'S STATEMENT OF EARNINGS AND DEDUCTIONS

PERIOD ENDING

GROSS EARNINGS F. & A. S. W. M. TAX INSURANCE

HRS.

MOTOR SALES

SALES

S. MAIN ST.

SERV.

PHONE

10592

IN MOTOR COMPANY, Inc.

No. 5242

You can cut costs now with the dotted line!

Where's the profit on this garage job—labor, parts?

Somewhere else. A garage, like any business, makes a profit by holding down costs on every one of the key operations of business—production, selling, billing, stock-keeping, disbursing, purchasing, receiving, collecting and delivery.

There are Moore business forms to help cut costs and reduce waste in each of these operations. A garage may need 5 kinds. A department store 50. A large corporation 500. Moore, and only Moore, makes all.

Moore forms range from simple two-part handwritten purchase orders to 14-part machine-written continuous invoice forms that whisk apart at the perforation—Moore's dotted line. And from one simple writing all departments get full information on clean, readable copies.

An invitation: Ask a Moore representative to look over your forms and suggest ways to simplify, improve and economize. Or write any Moore factory: Niagara Falls and Elmira, N. Y.; St. Paul, Minn.; Denton, Tex.; Los Angeles and Emeryville, Calif.; Salem, Ore.

MOORE BUSINESS FORMS, INC.

Offices in over 200 cities. Regional factories and distribution points in Canada also * * * **THE RIGHT BUSINESS FORM FOR EVERY FORM OF BUSINESS!**

- 1 Sales Books for Every Business Operation
- 2 Continuous Interleaved Typewriter Forms
- 3 Continuous Register Forms and Registers
- 4 Fanfold Billing Machine Forms
- 5 Speedisets for Fast Carbon Extraction
- 6 Marginal Punched Business Machine Forms

Offices in over 200 cities. Regional factories and distribution points in Canada also * * * **THE RIGHT BUSINESS FORM FOR EVERY FORM OF BUSINESS!**

- 1 Sales Books for Every Business Operation
- 2 Continuous Interleaved Typewriter Forms
- 3 Continuous Register Forms and Registers
- 4 Fanfold Billing Machine Forms
- 5 Speedisets for Fast Carbon Extraction
- 6 Marginal Punched Business Machine Forms



most of which never happened." To paraphrase for the purchasing agent, most troubles in buying office equipment will never happen if creative purchasing is practiced. This concept of preparing to write an order for office supplies may seem foreboding, but isn't half as grim as an unpleasant half hour spent in the "head office" trying to answer the question, "Why must office costs rise in the face of increasing purchases of office equipment?"

Having no desire to be called a cheerleader, perhaps I had better explain what I mean by creative purchasing of office equipment. Providence Washington Insurance Company serves thousands of policyholders of auto, marine, fire and ocean insurance. More than 4,000 agents are involved in our business of satisfying some 65,000 claims annually. Processing these claims once required two departments. To handle a claim we needed 14 forms, but made ourselves get along with ten, for each one formerly meant a separate typing, paper transmission, checking and filing operation.

How creative purchasing simplified this work so that we could consolidate two departments into one, eliminate nine tenths of the paper handling work, increase typing station production by as much as 15 per cent, and eliminate an important part of the cost of handling claims, might be called proof positive of creative purchasing.

Before we approved requisitions for office equipment "needed" to speed up the operation we applied a little work simplification. For each type of claim to be handled we bought differently colored file folders, pre-indexed with the master guide subject, "auto," "fire," etc. Only the name of the claimant need be added to this folder tab to complete it. The high identification value of these permanent housings for all the papers on a claim, which greatly speeded filing and finding, is a relatively minor benefit of the system we created.

Our next step was to help plan efficient collation of the various forms needed to process the claim. When arranged in proper sequence, with the smaller forms on top, and with partial or full 8½ x 11 carbons, the manifold pack is stapled inside the folder by the printer.

Folder and forms are inserted into the new electric typewriters we purchased to make the system possible. Now, with one typing we get the ten forms we always used and three additional forms which were too costly when we had manually oper-

ated typewriters. But the 15 per cent increase in typing station production we gained was merely incidental, though welcome, for this was not the real profit of the system.

When the operator finishes electric-typing the claim folder she simply pulls out the various copies wanted by cashier, claims supervisor, agent, etc. Carbons of each form remain attached to the folder and with one simple paper handling operation the typist produces, distributes and prepares all the forms handling claims and filing them.

Creative purchasing found profit in this paper work operation by refusing to accept requisitions for additional file folders and replacement typewriters at their face value. Purchasing had to probe into the work flow of the claims department, understand the end result desired and then contribute to simplified methods of obtaining these results.

In other companies the work that precedes creative purchasing may be done by office management or by technically trained suppliers. As a

occasionally or regularly distribute multiple copies of management data made up of figures. When we were faced with this problem, creative purchasing solved it for us. Specifically, our General Coverage Department is required to send out many copies of a report, "Final Premium Adjustment Endorsement." This report tells the insured the amount of his premium, and is used on policies where Providence Washington is sharing with other insurance companies a large, variable risk such as the total inventory assets of a large corporation with nation-wide stores or warehouses. This means that other insurance companies, our own officials and operating personnel, agents, branches and policyholders all require copies of the finished figures. Our problem was how to produce these needed copies of calculated data quickly and economically.

We used to work out the monthly totals and premium averages on a non-printing figuring machine with 80-odd keys. First figures were written in pencil on a work form.



Combination of printing calculator and plastic duplicating plate provides remarkable savings in production of duplicate copies of reports, bulletins and forms made up of figures.

Photos by courtesy of Remington Rand, Inc.

matter of fact, it must be admitted that creative purchasing of office profits demands resource cooperation of a high order. It has been our experience that office equipment suppliers are capable of helping to formulate more profitable purchases.

Every company is like Providence Washington in that its controller, salesmanager, engineering department and production head must

Then these figures were typed and verified. The only check for accuracy was to refigure the work, and this was not infallible for the same error might occur in the same place and get by unnoticed. Finally, under this method of working, we had a stencil cut. Naturally, this stencil had to be proof read for accuracy, a slow, laborious job in which it is difficult to guarantee accuracy.

(Please turn to page 263)



"Letter Perfect!"

With an IBM Electric Typewriter, your secretary will turn out the most beautiful and distinctive-looking work you've ever seen. Wherever your letters go, their fine appearance will reflect credit on you and on your company.

Your secretary will type faster, yet actually use far less energy doing it. She'll be able to devote more time to other important work.

So many exclusive time-saving, money-saving features are yours with an IBM Electric Typewriter, you'll certainly want to investigate its advantages without delay.

The Executive* Model IBM Electric Typewriter produces work with the appearance of a printed page. Even right-hand margins. Choice of 5 type styles. Saves type-setting costs.

*Trade-mark



Electric Typewriters

INTERNATIONAL BUSINESS MACHINES CORPORATION

IBM, Dept. PR
590 Madison Avenue, New York 22, N. Y.

☐

I'd like to see a demonstration of the IBM Electric Typewriter.

☐

Please send brochure.

Name (please print) _____

Company _____

Address _____

For
**PERFECT
CONTROL**
Over Factory and Office Forms
at Sizeable SAVINGS...



So Light!
So Thin!
So STRONG!

Here's just what the P. A. ordered! A lightweight business paper of many uses and economies.

STANDARDIZES OFFICE FORMS

Keeps your record and communication systems uniformly businesslike.

7 EFFICIENT ROUTING COLORS

In white or bright colors to assure accurate routing and filing.

SAVES MONEY 2 WAYS

Sea Foam's lightness cuts down postage, and gives you many extra sheets per pound.

SAVES OFFICE TIME

Sea Foam makes 14 clear copies. Thin to cut file space... yet crisp to stand up in files.



**Write for
SEA FOAM'S
FREE Test Kit**

Shows you just how good it is for all your paper needs! Write on your company letterhead.

BROWNVILLE PAPER COMPANY
The Mill of Fine Lightweight Papers
23 Bridge St. Brownville, N. Y.

Modernize

YOUR CATALOG AND BULLETIN FILES

Bring your source information up-to-date on new and improved office equipment and supplies by checking the latest trade literature listed on this page. This special office equipment section is in addition to the regular trade literature section on pages 19, 20, 22, and 24!

When Writing to Manufacturers Direct, Please Mention **PURCHASING Magazine**.

☐ **72. DESK TOP EQUIPMENT**—Catalog featuring items such as writing equipment, letter trays, memo pads, phone rests, ash trays, and many other products all designed for high office efficiency at low cost is available from Bert M. Morris Co., 8651 W. Third St., Los Angeles 48, Calif.

☐ **73. PENCILS**—A free sample of new Eberhard Faber Colorbrite pencil, with high-visibility hues and unusual strength in leads, is available. Specify red, blue, green or yellow. Eberhard Faber Pencil Co., Dept. P-6, 37 Greenpoint Ave., Brooklyn 22, N. Y.

☐ **74. DICTATION DISC or CYLINDER**—Free testing disc for Soundscribe and Audograph or cylinder for Dictaphone or Ediphone, offered by American Dictating Machine Co., 235 Fifth Ave., New York 16, N. Y.

☐ **75. CARBON PAPER**—Carbon paper users requesting sample sheets will be sent a convenient and informative folder containing the sheets, and carrying a writing strength chart which will enable the user to select the proper weight and ink intensity for the particular job in mind. Columbia Ribbon and Carbon Manufacturing Co., Inc., Glen Cove, N. Y.

☐ **76. TYPEWRITERS**—Bulletin entitled "An Efficient Typing Station" details the advantages of the new Remington Super-riter, said to perform better, faster, and at measurably less cost. Remington Rand, Room 1448, 315 Fourth Ave., New York 10, N. Y.

☐ **77. PHOTO-COPYING MACHINE**—Production speed of three prints a minute features new Foto-Flo copying machine; controlled developing time 45 seconds per print. Makes prints up to 18" wide by 24" long. New bulletin describes Model C Photo-Copying Machine. The Haloid Co., Haloid St., Rochester, N. Y.

☐ **78. COPYING**—Literature describing an exact facsimile, dry developing copying process that is said to save considerable time, labor and dollars for any department handling 50 items or more per day is available from Ozalid, Division of General Aniline & Film Corp., Johnson City, N. Y.

☐ **79. SAFES**—An educational and informative booklet entitled "What You Should Know About Safes"—covering all different types—is offered by Mosler Safe Co., 320 Fifth Ave., New York, N.Y.

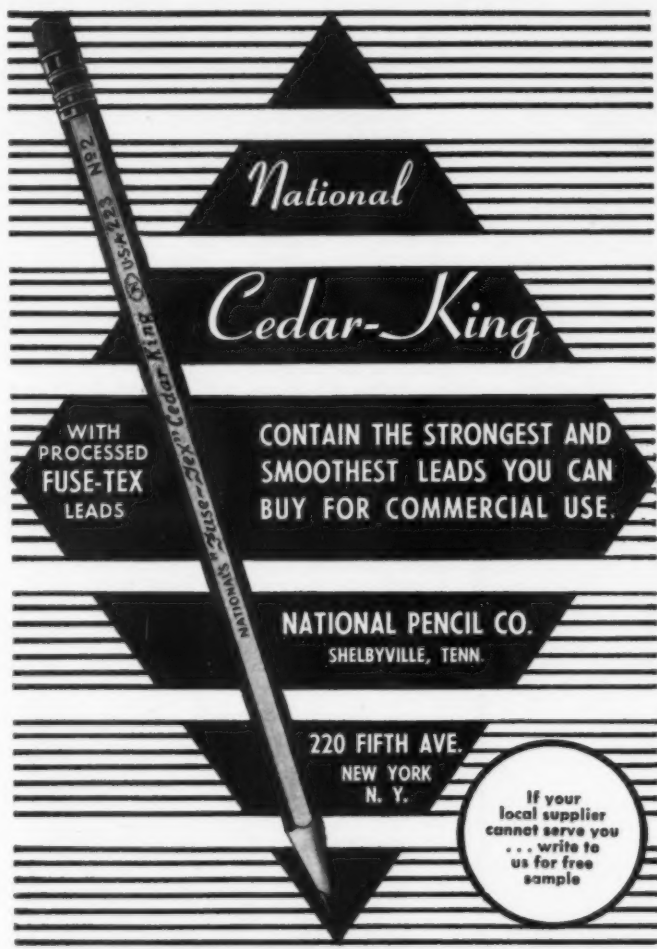
READER SERVICE

All listings include names and addresses of manufacturers.

However, each one is numbered. If you want to save Multiple-letter writing, just jot down the numbers of the items you want and month of issue, and list them in a letter on your COMPANY letterhead to

Reader Service Dept.
PURCHASING Magazine
205 E. 42nd St.,
New York 17, N. Y.

NOTE: This service also applies to all the new products, equipment and supplies listed on pages 212-234.



National
Cedar-King

WITH
PROCESSED
FUSE-TEX
LEADS

CONTAIN THE STRONGEST AND
SMOOTHEST LEADS YOU CAN
BUY FOR COMMERCIAL USE.

NATIONAL PENCIL CO.
SHELBYVILLE, TENN.

220 FIFTH AVE.
NEW YORK
N. Y.

If your
local supplier
cannot serve you
... write to
us for free
sample

Weldon Roberts Erasers

Correct Mistakes in Any Language



JET
Eraser

**NEWEST,
HANDIEST
ERASER!**

Cures eraser "losers", gratifies eraser users, saves no end of time! Cylindrical eraser of finest rubber, in red for pencil erasing or gray for ink. Encased in attractive transparent plastic holder of convenient length and balance. Clips to pocket, won't roll off desks. Not a mechanical gadget. Just unscrew the tip and move eraser forward.

Tops for typing, accounting, drafting; for executive, student and professional use — actually for everybody who wants an always-clean, handy eraser! Refills, of course.

ASK YOUR STATIONER TO SHOW YOU WELDON ROBERTS "JET" ERASERS. You'll see this JET Display card in many stores.



WELDON ROBERTS RUBBER CO.
Newark 7, N. J.

TRY ONE on the house!

TRYREX—the pencil with the special shape that fits your hand—will not roll.



Try for yourself . . . see why, for most efficient work, you should choose Omega. Check for stronger lead . . . brilliant color . . . the thin lead that holds a needle point . . . lightness of pressure required for clean, sharp figures . . . colored ends for instant selection . . . water-proof. Check all these points, at our expense.

A request on your business letter-head will bring you a sample.

OMEGA

COLORED PENCILS



MAKERS OF ROYAL SCOT AND FUTURA

RICHARD BEST PENCIL CO.

Dept. P, SPRINGFIELD, N. J.

Prominent Users of Strathmore Letterhead Papers: No. 88 of a Series



Commercial Credit Company was founded in Baltimore 38 years ago to make Operating Cash available to Manufacturers and Wholesalers through a Commercial Financing Plan.

COMMERCIAL CREDIT COMPANY, INC.
GEORGE BRIDGES BUILDING
BALTIMORE 2, MD.
—
MEMBER OF

a letterhead of QUALITY
gives credit to your business

Commercial Credit Company, while still operating from its headquarters in Baltimore, now has more than 300 offices throughout the United States and Canada. It has Capital and Surplus of over one hundred million dollars. Its wide variety of financing services are being used by businesses and individuals to a total of two billion dollars annually.

Naturally, such a company desires to convey a feeling of integrity in every phase of its business...and understanding the importance of the impression letterheads make upon their recipients, Commercial Credit chooses Strathmore paper to express this integrity.

Look at your own company letterhead objectively. Consider the design... the feel of the paper...the total impression. Does it say your firm is one of sound character and fine reputation? Is it a good representation of your company today? If not, have your letterhead supplier submit designs on Strathmore expressive bond and writing papers to discover how much quality and prestige a letterhead can carry.

Strathmore Letterhead Papers: Strathmore Parchment, Strathmore Script, Thistlemark Bond, Alexandra Brilliant, Bay Path Bond, Strathmore Writing, Strathmore Bond. Envelopes to match converted by the Old Colony Envelope Company, Westfield, Mass.

STRATHMORE MAKERS
OF FINE
PAPERS

Strathmore Paper Company, West Springfield, Massachusetts

INTERCOMMUNICATION SYSTEM FOR SMALL BUSINESS

The Webster Electric Company, Racine, Wis., announces a new Teletalk master unit and speaker especially built for small business and specialized departments of large businesses. The new unit is ultra sensitive and is easily installed.

1 1 1

FILM SHOWS HOW TO PROFIT BY TYPEWRITER ELECTRIFICATION

How typewriter electrification can and is making dramatic advances in cutting office costs and boosting efficiency is demonstrated in a new sound-movie film, entitled "Keys to Electri-Conomy", just released by Remington Rand, Inc., 315 Fourth Avenue, New York 10, N. Y.

Played by professional actors, the new visual aid to typewriter utilization shows how all-purpose electric typewriters answer the problem of electric vs. manual typing with typing station production increases of 10, 20 and even 50%.



Scenes from the picture demonstrate how the sponsor's new Electri-Conomy Test enables the business man to evaluate electric typewriters in his own office before he invests in any typewriter. Plot and characterization also reveal the Electri-Conomy advantages of quantity carbon copies, perfect stencil cutting and electrified carriage return.

The 27-minute, 16 mm. film is available free from any Remington Rand office, or may be booked by writing "Visual Aids Dept." at the home office. Remington Rand will provide operator, film and projector when requested to do so.

1 1 1

NEW STAMP PAD ELIMINATES NOISE AND WRIST STRAIN

Sanford Ink Co., Bellwood, Ill., has introduced a stamp of resilient foam rubber that is said to eliminate the noise and wrist strain usually associated with stamping operations.

With a light touch of the rubber stamp to the cushion it "drinks up" enough ink to make a clear and lasting impression on paper, Sanford says, and pounding is not necessary. The 20 sq. in. pad requires no special ink. Because the stamping surface is of foam rubber, there is never any annoying lint from the pad. It can be wiped clean with paper or cloth. It is available in five colors, or un-inked.

GF OFFERS NEW SMALL SIZE MACHINE DESK

A new 50" calculating machine or typewriter desk has been added to General Fireproofing's four-legged line of desks.

The new "all purpose" desk is compact and has many uses, not only for hand comptometer machines, but as a combination typing and clerical desk. There is convenient accessibility to the comptometer or typewriter and the writing surface; the contents of the pedestal drawers are

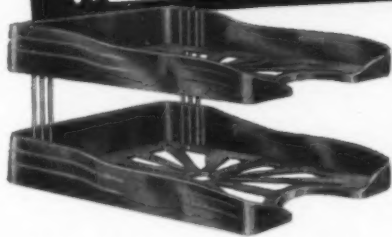


within easy reach. The person using the desk always faces in the same direction for all functions—with the light in the proper relationship to her position.

The desk is available with the pedestal or machine well on the right or left (1450 CR3 or 1450 CL3). Dimensions: 50" wide, 30½" high, 30" deep; writing top 34" wide. General Fireproofing is at Youngstown 1, O.

(Please turn to page 258)

SAVE DAYS OF Time WITH MORRIS TRAYS



It all adds up—Time saved where new streamlined Morris Trays are used. They offer more "hand room"; they are lighter in weight, easy to move about, functional in design. Versatile too, with combination sets for letter and legal and back to back. In five popular colors...at stationery and department stores.



One tray space for two desks—back to back.

THE Bert M. Morris COMPANY
8651 WEST THIRD ST. • LOS ANGELES 48, CALIF.



announcing

the
new

Remington *Super-riter*

Super-riter—created out of the world's longest experience in typewriter production . . . 77 years of it! *Super-riter*—efficiency-tested to save on office typing costs—sleek, functional in design. The Remington *Super-riter* will perform better . . . faster . . . at measurably less cost. Here's why:

- **Tempo-touch action!** Speeds type-bars to printing point—permits faster typing—truly responds to the touch and rhythm of the individual operator.
- **Super-Plus values!** The *Super-riter* has everything for feather-ease, less fatiguing typing: finger-fitted keys, one full inch Longer Writing Line, exclusive one-key Keyboard Margin Control, exclusive Perfect Positioning Scale . . . you get all these and more with *Super-riter*.

make the *Super-riter* savings test in your office today

Copyright 1950 by Remington Rand Inc.

Remington Rand THE FIRST NAME IN TYPEWRITERS

Remington Rand, Room 1448 315 Fourth Ave., N. Y. 10

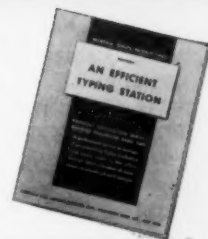
- ☐ Please send me FREE bulletin, "An Efficient Typing Station" on the superb new Remington *Super-riter*.
☐ Please have your representative call to arrange for the FREE *Super-riter* Savings Test in my office—without obligation, of course.

Name _____ Title _____

Company _____

Address _____

City _____ Zone _____ State _____



*Help your letters
make their mark*
THEY'RE RIGHT with RISING



Give your important letters the distinction of Line Marque quality. It's a paper that spells taste and distinction. Your printer will agree that for letters, your best paper is

Rising Line Marque

- ✓ Exclusive design patterned after Italian handmade paper
- ✓ 2 weights
- ✓ Excellent printing surface for die-stamping, lithography, gravure or letterpress
- ✓ White and 3 pastel colors
- ✓ Envelopes in 6 sizes
- ✓ 25% Rag



WHEN YOU WANT TO KNOW... GO TO AN EXPERT!

Rising Papers

ASK YOUR PRINTER... HE KNOWS PAPER!

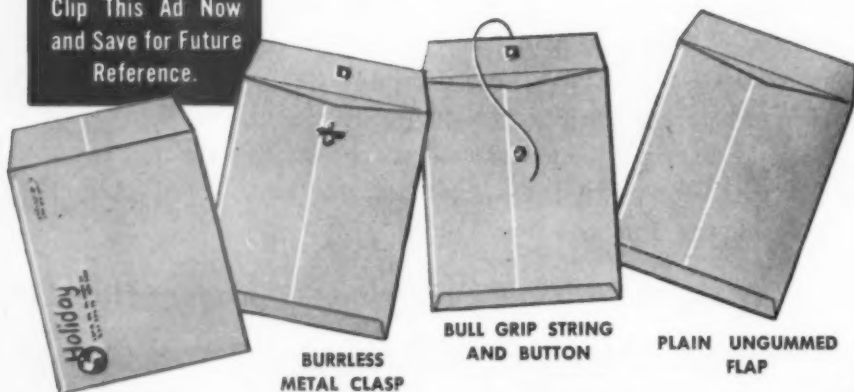
Rising Paper Company, Housatonic, Mass.

SAVE!

BUY DIRECT FROM
MANUFACTURER

Clip This Ad Now
and Save for Future
Reference.

CATALOG ENVELOPES AND MAGAZINE MAILERS



**SAFETY-EDGE
MAGAZINE MAILER**

**BURRLISS
METAL CLASP**

**BULL GRIP STRING
AND BUTTON**

**PLAIN UNGUMMED
FLAP**

Shown are four styles in envelopes and "mailers" designed for improved and lowered handling costs.

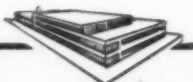
Equitable makes catalog envelopes to your specifications. Attach ad to one of your present envelopes and tell us your requirements: plain or printed, open end, metal clasp or string and button — we'll

submit direct-from-our-own-mill quotations by return mail.

Equitable

PAPER BAG COMPANY

45-50 VAN DAM STREET
LONG ISLAND CITY 1, N. Y.



Mills at Orange, Tex.

USE FLAT FLEXIBLE TUBING FOR RECORD-PROTECTION

As a means of keeping records intact and protected over the conventional 25-year period, the Retail Merchants Association, Fort Worth, Texas, is using envelopes of Plaxpak polyethylene film.



Tough tubing keeps records

This tough, non-tearing and transparent material is supplied to the Association by the Plax Corporation, Hartford, Conn., in rolls of flat, flexible tubing (Plaxpak Layflat tubing).

The width of the tubing is slightly greater than the width of the forms in use. The material is cut from the roll in the desired length to produce envelopes open at both ends and stocked for use as file envelopes. As the records are to be filed, each set of forms is slipped into an envelope. The transparency of the material makes it easy to identify the set of records, while the non-aging durability of the film assures an envelope that will remain intact over long periods of time.

1 1 1

OFFICE COUCH FEATURES MANY HEADREST POSITIONS



Virtually unlimited headrest positions are available with a new Rest Awhile couch offered by Kalmus-Golden, Inc., 45 W. 36th St., New York 18, N.Y. A touch of the finger on the slotted spring in the cushion adjusts it to any angle.

The couch is of resilient innerspring construction and is 29" wide and 72" long. Upholstered in Boltaflex, it is available in red, forest green, and walnut brown, and in a range of multicolor prints. The material is described as exceptionally resistant to wear. It can be kept clean by wiping with a damp cloth. The cushion can be raised at any angle to practically a sitting position by lifting the headrest. It is easily released for lowering by raising it to its full height.

NEW INDEXING SPACING GUIDE FOR VISIRECORD ANNOUNCED

VISIRECORD, Inc., 32-36 47th Ave., Long Island City 1, N. Y., announces a completely new indexing and spacing guide, known as Magnivider for the Visirecord visible record keeping system. Completely different in shape and construction, it embodies the latest production techniques and product improvements.

The spacing assemblies at the end of each guide panel are of various dimensions (depending on card width, card stock and visibility) from .140" to .575" in thickness and in all card heights from 6" to 12". They are extruded of Tenite II plastic.



Magnistrip provides "normal vision" slanting indexing with complete protection for every sub-index and card

The curved visible strip across the top of the Magnivider is extruded of crystal clear Tenite II. The body of the Magnivider is made of chemically treated aluminum. The plastic parts are firmly bonded to the aluminum body of the Magnivider by rivet extrusions formed out of the aluminum body.

The index tabs are also manufactured of Tenite II crystal clear extrusions and snap over the top of the curved visible strip, with the bottom of the tab securely held in a pocket between the aluminum extrusion rivets.

Among the advantages claimed are: increased visibility; increased card capacity; increased simplicity of indexing; increased protection of the cards in echelon; increased beauty and neatness of the file; increased strength and durability.

CORDLEY & HAYES OFFERS ELECTRIC COOLER DATA

Cordley & Hayes, 443 Fourth Ave., New York 16, N. Y., announces its new Form 20, condensed catalog folder. This unique publication tells how to select the proper type of electric water cooler for normal and abnormal atmospheric conditions, and further guides the selection of the proper size for a given requirement.

The folder also gives details on 12 models of Cordley Electric Water Coolers, 3 bottle and 9 pressure types for every industrial and commercial need. An excellent reference for anyone who buys or specifies electric water coolers.

(Please turn to page 260)



Where does CRESTLINE belong? . . .

Up front of course . . . in foyer, reception room, private offices or general offices . . . for this file is truly a beautiful piece of office furniture. Thus CRESTLINE Files make valuable floor space pay double dividends . . . and give you the unequalled advantages of quiet *GLIDERBALL SUSPENSIONS*, *FULL USE EXTENSION*, concealed *SINGLE TOUCH LATCH* and *LIFETIME STEEL CONSTRUCTION*.

CRESTLINE Files belong at the top of every buyer's list!

Crest  **LINE**



9401 CRESTLINE Letter File

SECURITY STEEL EQUIPMENT CORP., AVENEL, N. J.



Now...
Intense Color
with a
feather
touch



No other office colored pencil ever
combined all the features of the new

**EBERHARD
FABER**

Colorbrite

EXTRA THIN

Only Colored Pencils made with new COLIMAC® formula... New, scientific color hues for high visibility. Easier to read in any light... **AMAZINGLY STRONG** leads, **GUARANTEED** not to break in normal use... Wet-proof, smear-proof, permanent!... Write fast, bear down hard... you'll hail Colorbrite's smoothness, color and strength. *It's different!*

Attach coupon to your business letterhead for **FREE SAMPLE**

Mail to Eberhard Faber Pencil Company, Dept. P-G 37 Greenpoint Avenue, Brooklyn 22, N. Y.

Name

Position

Dealer's name

Color choice: ☐ red ☐ green
☐ blue ☐ yellow

*The name Eberhard Faber has given its new Colorbrite lead formula
TRADE MARKS REG. U. S. PAT. OFF.

NEW TYPEWRITER AND ADDING MACHINE STAND

A sturdy new portable stand for typewriters and adding machines has just been announced by National Suppliers, 3214 W. Augusta Blvd., Chicago 51, Ill. The frame is constructed of heavy gauge furniture grade steel, electrically welded.



Two removable shelves for papers and copy work are supplied with each stand. Large, easy rolling casters provide portability so that machines can be quickly moved about the office. The top surface consists of a rubber mat which not only holds the machine securely, but also reduces noise and vibration.

The new stand is available in a choice of three attractive Hammerloid finishes. Gray, Green or Walnut. Size: 26½" high, 18" wide, 16" deep. Price \$8.95 each.

1 1 1

IBM INTRODUCES NEW FORMS-FEEDING DEVICE



The IBM Pin Feed Platen, a form feeding device for attachment to IBM Electric Typewriters, which provides an easy, rapid way of converting the IBM Electric Typewriter into an efficient continuous-forms-writing machine, feeds, aligns and accurately registers marginally-punched forms at the writing point.

Easily interchanged with a standard platen, it has retractable pins which emerge only where necessary for the feeding of the form. Where requirements of forms differ, it is a simple matter to slip off one platen cylinder and replace it with another of a different length or hardness. This flexibility enables an operator to select the proper platen cylinder for each job, assuring maximum efficiency as well as the finest quality typewritten results.

The IBM Pin Feed Platen accurately feeds forms with holes 5/32" in diameter, spaced vertically ½" apart from center to center over the full length of the form, punched in both margins and identically located on all copies of all sets through

Did you get
your
umbrella
in a
Sheppard
Envelope?

Just a reminder that the same company that makes those flavor-seal social and business envelopes also makes millions of product container envelopes — called "Product Pushers" because they help sell, as well as protect, the products you buy.

Next time you think of a product package think of Sheppard. See their colorful designs — compare their easy-to-load flaps.

Choose Sheppard envelopes.

Sheppard with the
flavor seal
flap
ENVELOPES
1 Envelope Terrace
Worcester 4, Mass.



THIN PAPERS

Reduce

TYPING, MAILING
and FILING COSTS

Use

ESLEECK
THIN PAPERS

Fidelity Onion Skin
Clearcopy Onion Skin
Superior Manifold

Esleeck Manufacturing Co.
Turners Falls, Mass.

the pack of forms. Guides are provided to insure proper alignment of forms. Five cylinder lengths are available to accommodate forms from $5\frac{3}{4}$ " to $10\frac{3}{8}$ " wide. Made by International Business Machines Corp., 590 Madison Ave., New York, N. Y.

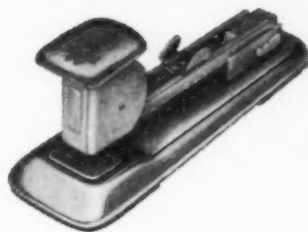
POSTING TABLE SAVES SPACE, AIDS IN ORGANIZING WORK



Big enough to provide adequate posting space, plus room for "in" and "out" baskets, and small enough to encourage neat organization of all three activities, is the new Model 2428 posting table made by the Herring-Hall-Marvin Safe Co., of Hamilton, Ohio. The 30" high table is made of steel, with a 24" wide by 28" deep composition top, a full width, deep utility drawer, and is finished in H-H-M gray.

Originally designed to satisfy the demands of H-H-M rotary record file users, the new table is said to enjoy wide acceptance on all posting and reference jobs for its efficiency and space economy.

RUGGED OFFICE STAPLER CAN FASTEN UP TO 40 SHEETS



Arrow Fastener Co., Inc., 30-38 Maurer St., Brooklyn 6, N. Y., has introduced its No. 202, a stapler designed for heavy commercial use in the office.

Rugged, yet streamlined, it can be used as a stapler and tacker with a temporary and permanent stitch. It fastens up to 40 sheets of paper, has a reach of $3\frac{3}{4}$ ", weighs 16 oz. and loads 210 standard staples $\frac{1}{2}$ " x $\frac{1}{4}$ ". It is constructed of all steel with chrome finish. The stapler is jam-clog proof, and has a stainless steel cap which insures against heavy pounding and prevents discoloration. It is easy to load because the loading device is visible, handy and designed for easy grabbing.

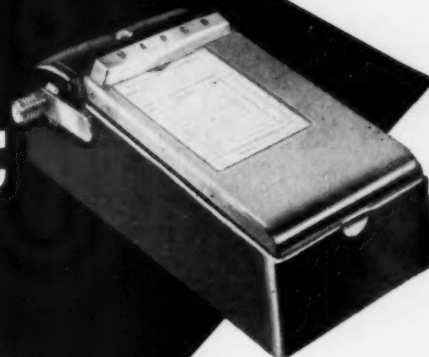
UARCO *presents—*



The New Portable

- ★ records on the spot—counter, desk, platform
- ★ built-in record file removable for accounting
- ★ 2, 3, 4, or 5 part forms—up to $5\frac{1}{2}$ " x $8\frac{1}{2}$ "

America's finest line of AUTOGRAPHIC REGISTERS



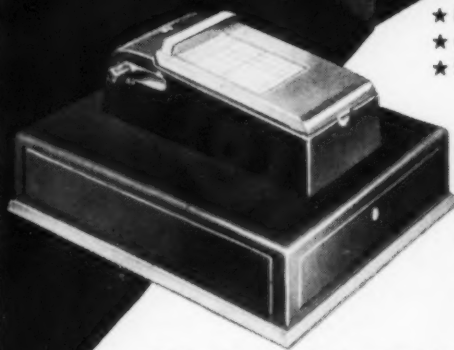
The Recorder

- ★ automatically locks up one or more copies
- ★ issues remaining copies with same stroke
- ★ 2 to 5 part forms—holds 300 duplicates



The Manifold

- ★ issues all copies—extra large capacity
- ★ sturdy, all-steel construction—ideal for factories
- ★ 2 to 5 part forms—sizes to $8\frac{1}{2}$ " x 11"



The Cashier

- ★ file for records—drawer for cash
- ★ transaction recorded before drawer can open
- ★ easy accounting—cash against records

**every advantage...
for every business**

There is a Uarco Autographic Register for every business—regardless of its type or size. And every Uarco Register brings all these advantages.

- ★ Faster, more convenient record writing
- ★ More legible copies
- ★ Consecutive numbering for absolute control
- ★ Easy posting
- ★ Simplified bookkeeping
- ★ Fewer customer disputes
- ★ No misplaced books or pads
- ★ No lost records
- ★ No forgotten charges.

Your Uarco Representative will help you choose the right registers for your business—and the right forms to get the most out of them. Call him—no cost or obligation.

UARCO INCORPORATED

Factories: Deep River, Connecticut; Chicago, Illinois;
Cleveland, Ohio; Oakland, California.

Sales Representatives in all principal cities.

UARCO

INCORPORATED

Business Forms

How Eight Hours of Filing Can Shrink to Six, Five—even Four!

Filing departments that have switched to this amazing new-style hanging folder report "fantastic" results. It is hard to believe that such a simple change as "hanging" a folder can effect so great an economy in the cost of filing!

This new-style filing folder is coming into such widespread use that many manufacturers are now equipping their latest model filing cabinets with built-in rails from which Pendaflex folders can be suspended.

But you don't need new cabinets for Pendaflex. In your present filing cabinets, you simply install the sturdy low-cost Pendaflex frame, from which the Pendaflex folders hang.

What makes Pendaflex so much faster?

Why does eight hours of filing shrink to six, five, even four, just because the filing folder hangs by its top edges instead of resting on its bottom edge?

A time and motion study would show these **FIVE TIME-CONSUMING OPERATIONS ELIMINATED** by the use of Pendaflex hanging folders:

1. No reaching in the back of the drawer to loosen the follower block.
2. No spreading open a "V" working space.
3. No shifting of folders from a "back-leaning" to a "forward leaning" position, or vice versa.
4. No fingering through folders one by one to find tab headings.
5. No reaching in back of drawer to tighten follower block again.

Elimination of these five time-wasting operations allows us to make the very conservative claim that filing time is reduced 20% by Pendaflex. Actually, savings up to 50% are not at all unusual!

That's why, in one big filing department, the filing time of five filing clerks was cut in half by the use of Pendaflex folders, resulting in a yearly saving of **SEVERAL THOUSAND DOLLARS**.

Another company employed eighteen look-up clerks in their claims department. Pendaflex made possible a basic change in their system of filing, so that today, all look-ups are handled by one file clerk!

What is Oxford PENDAFLEX?

Pendaflex is just like an ordinary filing folder, except that each Pendaflex folder is attached to metal rods so that the folder is suspended in the file. The folder does not touch the bottom of the file drawer.

How about the **HUMAN ANGLE**, the file clerk who does the filing? There's a vast difference between wearing yourself out with a day's work, and coming up to a cheerful closing time with no "five o'clock fatigue".

Consider a small matter like hangnails! Pendaflex folders have no sharp paper edges to cut into the cuticle. Ask the file clerk who works with Pendaflex folders. She isn't too much interested in how much hard cash Pendaflex is saving the boss. But she will tell you she would sooner **QUIT HER JOB** than go back to filing in old style folders!

It all adds up to this: Pendaflex should be given a trial in your office!

Try Pendaflex folders at **NO COST**, in one drawer of your files. If Pendaflex does not come up to your expectations, you can return the trial drawer installation and the small purchase price will be refunded.

This trial drawer installation is a complete package. You get a Pendaflex frame, and all the necessary folders to equip a single drawer for Pendaflex filing. It can be popped into the drawer, ready for immediate use. Complete instructions come with the trial drawer material.

BUY NOTHING—ORDER NOTHING

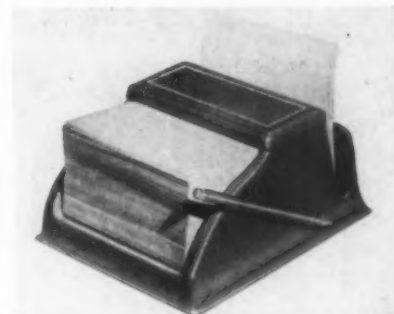
So send no money now—just fill in and return the coupon for your copy of the Pendaflex catalog and name of dealer in your vicinity from whom you can order a trial drawer installation.

WARNING

No filing department is too small for Pendaflex. No filing department is too large for Pendaflex. Any filing department without Pendaflex is throwing money away!

ANNOUNCE NEW MEMO BOX WITH PENCIL AND NOTE HOLDER

The American Binder Company, Inc., 109 W. 64th St., New York 23, N. Y., announces the Permo "Side-Kick Jr." magnetic memo box with built-in note holder, automatic pencil "that's always there", and memo sheets.



The pencil has a new round shape, with a propel-repel mechanism, eraser in its head, extra leads and gold-plated head and tip. The user merely touches the pencil to the box, and it remains there ready for instant use. The box comes filled with a year's supply of 700 (4x4) memo sheets.

GLOBE-WERNICKE OPENS NEW SHOWROOM IN NEW YORK CITY

The Globe-Wernicke Co. of Cincinnati, O., office furniture manufacturer, has announced the opening of new offices and showroom in the News Building, 220 East 42nd St., New York 17, N. Y.

MODERN DESIGN BOOKCASE INTRODUCED BY G-F CO.



The General Fireproofing Co., Youngstown 1, O., has introduced a new bookcase to blend with the modern design of the Mode-Maker desk line. It has a velveteen top and the double aluminum binding strip which characterizes the desk line.

Shelves move out as the doors are opened, making it easier to withdraw or return books. A moveable compressor keeps the books upright. The bookcase will also handle filing folders, ring binders, and miscellaneous materials conveniently. It is finished in standard G-F gray, but available in other finishes at increased cost.

Mail this NOW

Oxford Filing Supply Co., Inc.
Clinton Road, Garden City, N. Y.

Send us your Pendaflex Catalog, and name of nearby Pendaflex dealer.

Name _____

Company _____

Address _____

City _____

State _____



Finding Profit in Paper Work

(Continued from page 252)

So here was another problem for creative purchasing to solve. Before writing our orders we first had to find out what it was we were buying. We decided we were after quicker communication. We wanted a faster, more accurate method of disseminating information of a particularly difficult type—figures. We followed our concept of creative purchasing and dumped the problem, along with a solution with the end result we wanted, right into the laps of our office supply technicians.

We came up with a totally new idea that has a universal application wherever figure-facts must be distributed. We gained a method that we will apply universally throughout our office because it fractionalized the work previously required to turn out a specific report made up of figures.

The method and result we bought is gained by pre-printing our master ruled form, with standing column headings, onto what are known as plastiplates. This ruled original and printing medium is rolled, like paper, into the 13 inch carriage of our printing calculator. When the operator uses the printing calculator to figure, the machine prints the answer directly onto plastic plate.

The moment the finished form plate leaves the printing calculator it is ready for the press. All intermediate steps are eliminated. Most important, the operator has a constant visual check for accuracy. Errors are caught as they happen and easily corrected right on the plastiplate with an ordinary pencil eraser. Time consuming typing, transcription and proof reading are unnecessary.

In addition we have an offset rather than a mimeograph reproduction. The plastiplates produce darker, more readable and legible print work and prevent the errors that often result from poorly duplicated statistical sheets. A minor satisfaction gained from this episode of creative purchasing is the fact the printing calculator proved so adaptable for general computation work it allowed replacement of three other machines.

The plain truth seems to be that every purchase order written for office equipment gives the purchasing agent an undeniable opportunity to "show a profit." A little curiosity, a lot of creative pre-order planning, and greater use of qualified suppliers can make purchasing for profit come alive for management tools.



"MARATHON READY-MASTERS

... AND I

are just like that!"

Like loads of other offices, we do a lot of hectograph duplicating. And who prepares the masters? Little me! But unlike lots of girls in those other offices, I don't mind the job... not with MARATHON Ready-Masters.

Personally, I like Ready-Masters because the carbon surfaces and all cut edges are "Super Coated" to keep them clean. You don't find me in the washroom scrubbing purple stains off my hands. Of course, my boss has other reasons for using them. He likes the idea of the choice of colors. You can get Ready-Masters in blue and black, as well as purple. And Ready-Masters have a very special ink formula that gives lots more

clean, sharp copies without smudges or finger marks.

Economy is another thing everybody goes for in a big way. Ready-Masters have improved shelf life, so we can buy larger quantities without worrying about them aging in stock.

I'll bet if you write to Columbia they'll send you samples of Ready-Masters for you to try for yourself. Then Ready-Masters and you and I will be just like that!



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**MARATHON
READY-MASTERS**

MARATHON Ready-Masters are furnished blank or with form preprinted... in single sheets or assembled systems for use with all types of business machines.

COLUMBIA RIBBON & CARBON MFG. CO., Inc.
156 Herb Hill Road, Glen Cove, L. I., New York.

Please send me samples of Marathon Ready-Masters and information about their many uses. Check color desired ☐ Black ☐ Purple ☐ Blue

Name _____

Position _____

Firm _____

Address _____

City _____ Zone _____ State _____

Award your Typists this
**DISTINCTIVE
 SERVICE RIBBON**
*...for outstanding
 typing performance*



Here's a ribbon that makes good impressions on any letterhead... keeps your sales message dressed to sell.

This Underwood Corporation Gold Box Ribbon is pure silk for extra-long service and uniform ink distribution.

You'll get sharper, *more* legible typing... *more* letters per ribbon... for only a few more pennies. Excellent for accounting and billing machines, too.

Other high-quality Underwood Corporation ribbons come in a wide variety of colors and color combinations. Obtainable in various degrees of inking, and with special purpose inks for special requirements.

**BUSINESS RELIES ON
 UNDERWOOD CORPORATION SUPPLIES**

Half a century of research and development have resulted in the high perfection of all Underwood Corporation Supplies. In addition to ribbons, these include Correspondence Carbon Papers for every need, Carbon Rolls and Paper Rolls, Hectograph Carbons, Mimeograph Ink, Stencils, and Correction Fluid.

*To make any office machine do its best... insist on
 the Underwood Corporation Supply Line.*

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Why they think of **WARD** when it's **SPRING STEEL**

● **BLUE TEMPERED SPRING STEEL**

Many Hundreds of Sizes

.002" to .065" in thickness — .95 to 105

Carbon — 48-51 Rockwell

● **COLD ROLLED ANNEALED SPRING STEEL**

.003" to .187" in thickness — .70 to .80

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**CLOSE TO A THOUSAND SIZES IN STOCK — AND
COMPLETE SLITTING AND SHEARING EQUIPMENT
ENABLE US TO FILL PROMPTLY THE MAJORITY
OF ORDERS RECEIVED.**

**WAREHOUSE SHIPMENTS ONLY ON THE ABOVE
SPRING STEELS. NO EXPORT ORDERS.**

For above Spring Steels Apply to

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Prompt Shipment from either stocks

Or from Distributors Below

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Cold Drawn Steel Bars, Sq., and Flats
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WARD STEEL CO.

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BOSTON 10, MASS.

Among the ASSOCIATIONS

Syracuse and Central New York Assn. Has Past Presidents Night

The annual meeting of the Purchasing Agents Association of Syracuse and Central New York was held on April 26 in the Onondaga Hotel, Syracuse, N. Y. New officers and directors chosen are shown in the top photograph: (seated, left to right) D. E. Hethington, first vice-president, Crouse-Hinds Co., Syracuse; J. M. Austin, president, Oneida, Ltd., Oneida; D. H. Covert, national director, International Business Machines Corp., Endicott; (standing, left to right) M. Riepel, treasurer, Alexander Grant's Sons Co., Syracuse; A. Kemp Stevens, second vice-president, Aircooled Motors, Inc., Syracuse; G. L. McCaffrey, secretary, Auto-Lite Battery Corp., Owen-Dyneto Division, Syracuse.

Directors of the association are J. H. Holton, Carrier Corporation, Syracuse; J. G. Strafella, Brunner Mfg. Co., Utica; Chester A. Fowler, Columbian Rope Co., Auburn; and A. Willard Hoffman, Brewer-Titchener Corp., Cortland.

The meeting also featured "Past Presidents' Night". In addition to the past presidents, whose table is shown at right, past secretaries and past treasurers were also honored. Gold plated belt buckles were given to 22 past presidents, listing their names, the years of service, a gavel insignia with the word "president" and the initials "P.A.". The letters were orange and blue, the association colors.

DAYTON ASSOCIATION NAMES NEW OFFICERS FOR 1950-51

New officers for the Purchasing Agents Association of Dayton, named at the May meeting, are:

President, Bob Long; national director, Paul Boorum; local director, Ed Sander; first vice president, Tony Ruediger; second vice-president, Harold L. Williams; secretary, Edwin Griest; treasurer, Will Schurene.

The May meeting took the form of a plant visitation at Armco Steel Corporation in Middletown, O. Dinner was served first, in the Manchester Hotel, Middletown, following which the members toured the Armco plant.

The association's annual picnic, golf party and dinner is scheduled for June 8 at the Dayton Country Club.



Rochester Association Elects New Officers



Shown above are the new officers of the Rochester Association of Purchasing Agents, elected at the April meeting.

They are: first row (left to right) W. B. Wight, secretary; Perc Coomber, president; Joseph Ernst, first vice-president; Walter Almond, second vice-president; Clarence Buss, retiring president, and member of the board of directors; Frank Willson, board of directors; John Hoover, third vice-president; Robert Ade,

convention chairman; Wm. Kramer, Dave Rodgers, and Wm. Kelly, board of directors.

Guest speaker at the April meeting was Len Thomasma, assistant general sales manager of the Todd Company, on the subject "The Salesman of the Future". Highlight of the May meeting was a talk by E. R. Eastman, president and editor of the American Agriculturist.

(Please turn to page 270)

Trucks powered with Gould "Thirty" batteries go at full power months after ordinary batteries have begun to slow down.

96% of the entire working surface of Gould's new "Z" Plate is regenerative power-producing material. The grid itself is 66% more resistant to deterioration. Grid porosity is reduced 85%. This is why the

GOULD "THIRTY" BATTERY
with new "Z" Plates is
"America's Finest Industrial
Truck Battery"



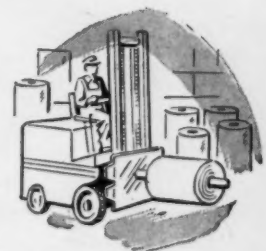
*Position loads faster.
Lift and maneuver
at same time. Stable
on highest lifts.*

**Nothing
Beats**

GOULD-POWERED TRUCKS!



*Battery trucks do
more work. Always
ready to go.
No unpredictable
down-time. Foolproof
speed controls.*



*Battery trucks are smooth,
easy to handle,
cut driver fatigue.
Quiet, odorless, safe.*

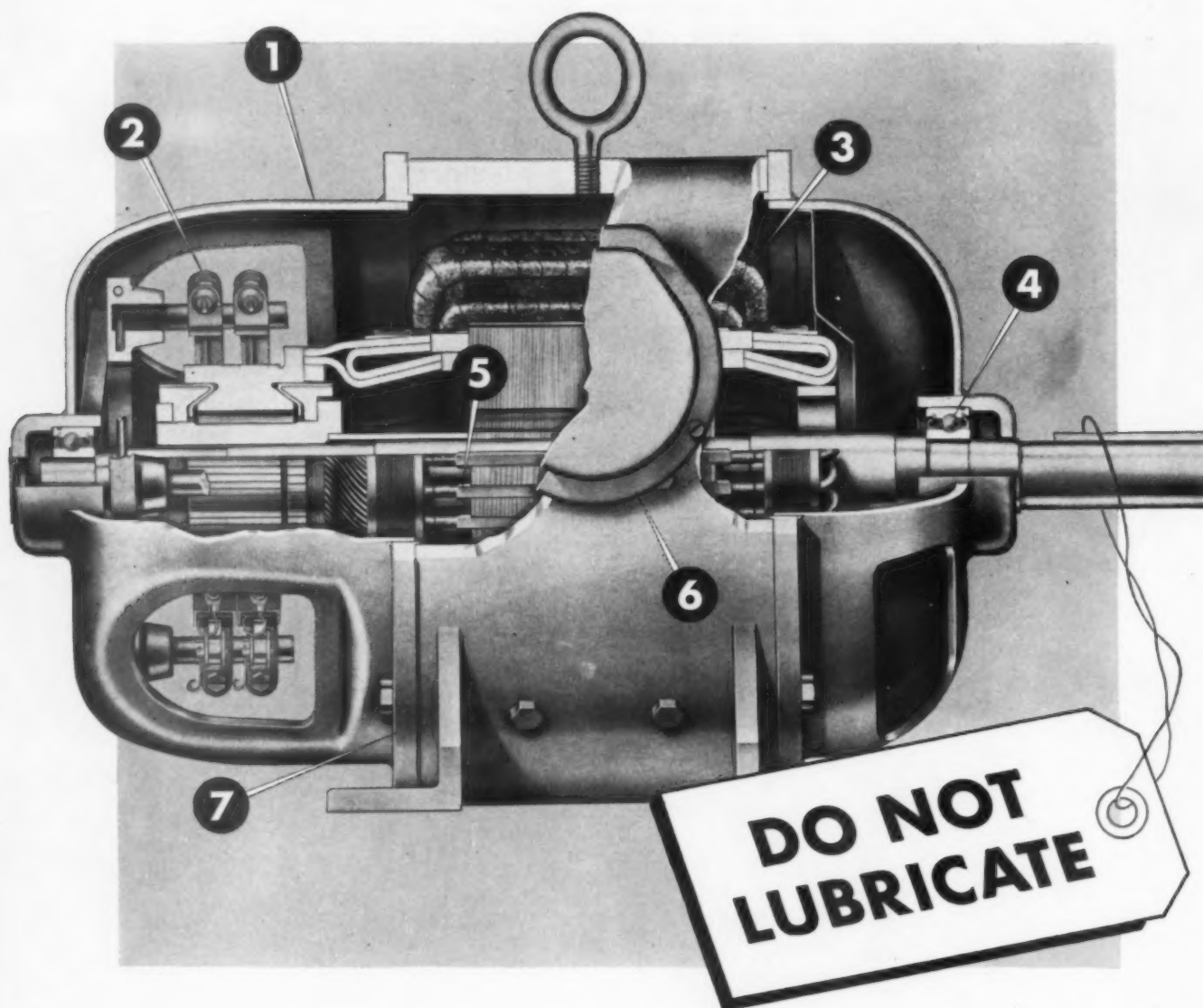
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**STORAGE BATTERY
CORPORATION**

TRENTON 7, NEW JERSEY

Always Use Gould Automobile and Truck Batteries

YOU CAN BE **SURE**.. IF IT'S
Westinghouse



① ALL-STEEL BRACKETS

② INDIVIDUALLY REMOVED CAST BRASS
BRUSHHOLDERS

③ SHELL-WOUND FIELD COILS

④ DOUBLE-SEALED PRE-LUBRICATED BALL BEARINGS

⑤ HEAVY-DUTY PRESHAPED ARMATURE COILS

⑥ STEEL-GASKETED CONDUIT BOX

⑦ ROLLED-STEEL FRAME

-----If you figure **LIFE-COSTS**...you'll figure **LIFE-LINE**-----

SK DEPENDABILITY

Wrapped in Steel

in the NEW Life-Line D-C MOTOR

Thirty-nine years at hard labor—in steel mills . . . in mines . . . in a thousand and one applications—have proved the dependability of the type SK d-c motor. Now, new dependability has been added—new motor stamina . . . new freedom from maintenance . . . new value for d-c motor users.

MAXIMUM STRENGTH AND RIGIDITY—Heavy steel end brackets and rolled-steel frame stand up to the shocking, jarring blows so often encountered in rugged d-c service.

SIMPLIFIED SERVICING—Readily accessible through spacious opening in front bracket, brushholders may be removed individually. Armature coils, wound from Tufvar wire and treated in Thermoset varnish assure long life

. . . reduce trouble from shorts and grounds: Double-sealed pre-lubricated bearings (proved in over half a million motors) put an end to greasing problems.

INDIVIDUAL FIELD COIL UNITS—One coil may be replaced without expense of replacing all . . . or discarding pole piece. Just slip the new coil in place . . . save repair costs.

These are a few highlights of the new, all-steel Life-Line type SK d-c motor. Get the complete facts on series, shunt, or compound motors . . . frames 203-365 . . . in 1 to 30 hp ratings. Contact your local Westinghouse representative. Ask for a copy of "D-C Motor" Booklet B-4595, or write Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania.

J-21549



Education Theme of Philadelphia Association's April Meeting



Education was the theme at the April 13 meeting of the Purchasing Agents Association of Philadelphia, which featured talks on that subject by Dr. C. Canby Balderston, Dean of the Wharton School of Finance and Commerce, and George A. Renard, Secretary-Treasurer of N.A.P.A.

The meeting was also the occasion for distribution of certificates of completion

of the prescribed course sponsored by the association. Group leaders accepted the certificates and later distributed them individually. Prices were also awarded to the winners in the essay contest conducted among students in the basic course.

At the speakers' table (top left) were H. F. "Hack" Jones, George Renard, and W. L. Thompson. Top right, are A. E. Miller, Robert Hayden, and Vincent

DeP. Goubeau. Bottom left, President P. J. Clarke presents a prize in the Basic Course Essay Contest to J. H. Flynn, RCA Victor Divn. Bottom right: a group at the dinner discussing the afternoon forum debate—(left to right) J. F. Stepahn, Samuel Monteith, H. G. Munro, Albert Anthony Bauer, Horace Robinson, H. F. Wonderlin, Robert O'Brien. (Other pictures on page 280)

Guests of Honor at Recent Carolinas-Virginia Meeting



Shown above are the guests of honor at the banquet table during the closing session of the recent Carolinas-Virginia Purchasing Agents Association meeting, held in the Robert E. Lee Hotel, Winston-Salem, N. C. The meeting was reported in a previous issue of PURCHASING.

Left to right are: R. V. Spangler, chairman of the educational committee, Mill-Power Supply Co., Charlotte, N. C.; W. G. Haddrell, vice-president of the

association, Mathieson Chemical Corporation, Saltville, Va.; J. T. Holt, program chairman, Erwin Cotton Mills, Durham, N. C.; Brigadier General L. O. Grice, Jeffersonville Quartermaster Depot, Jeffersonville, Ind.; James M. Berry, president of the association, Vick Chemical Company, Greensboro, N. C.; R. C. Haberkern, past president of the National Association of Purchasing Agents, R. J. Reynolds Tobacco Company, Winston-

Salem, N. C.; Heinz Luedicke, executive editor of the New York Journal of Commerce; C. H. Dry, national director of the association, Cannon Mills Company, Kannapolis, N. C.; C. L. Wyrick, secretary-treasurer of the association, Dillard Paper Company, Greensboro, N. C.; R. A. McCuiston, chairman of the finance committee, Thomasville Chair Company, Thomasville, N. C.

(Please turn to page 274)

*In all the world
there's only one TUBE-TURN
Welding Fitting as shown
by this trade mark... the
right mark for every need
in welding fittings
and flanges.*



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*Your nearby TUBE TURNS distributor can
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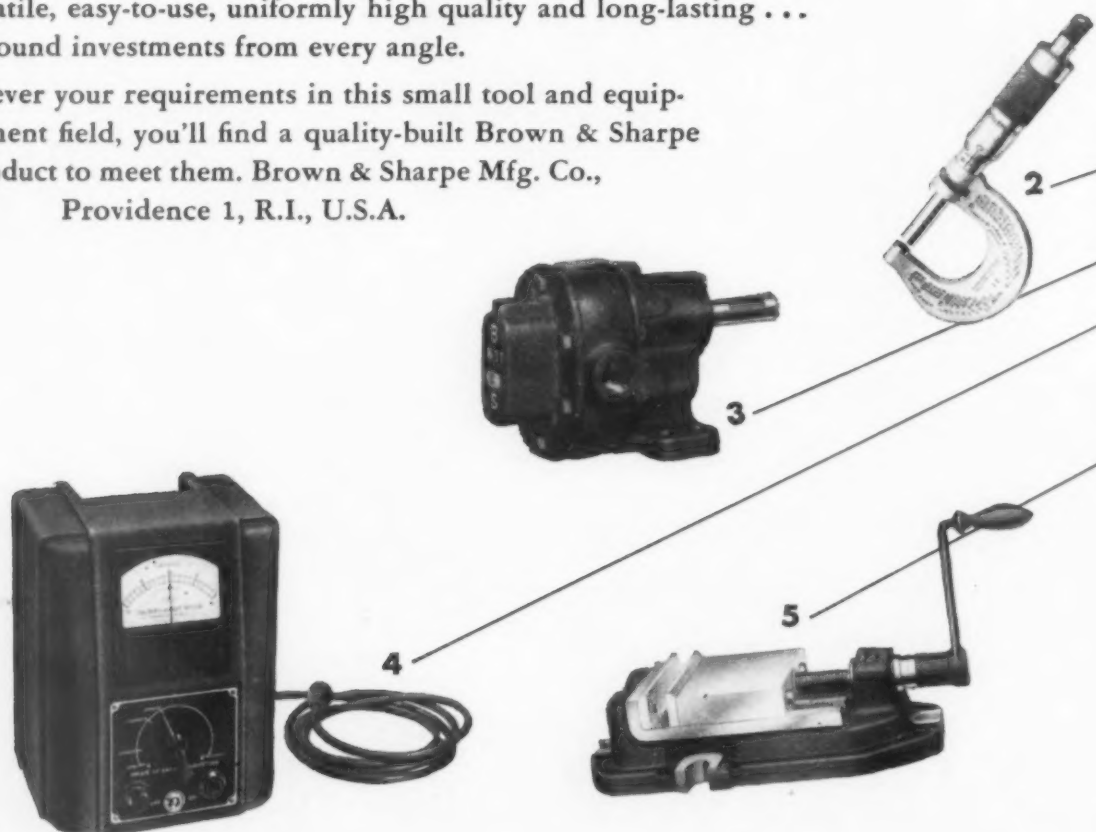
TUBE TURNS, INC., LOUISVILLE 1, KENTUCKY DISTRIBUTORS IN ALL PRINCIPAL CITIES
DISTRICT OFFICES: NEW YORK • PHILADELPHIA • PITTSBURGH • CHICAGO • HOUSTON • TULSA • SAN FRANCISCO • LOS ANGELES
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10 ways to keep a tight rein on

The variety of precision-built products shown here is representative of 10 different types of cost-saving small tools and equipment manufactured in complete ranges by Brown & Sharpe.

Each item has distinctive design and construction features that will help you hold a tight rein on your production costs. Some of the basic overall features include carefully selected materials, accurate workmanship with painstaking attention to details, and dependable performance. When all the features are added up, the results are products that are extremely versatile, easy-to-use, uniformly high quality and long-lasting . . . sound investments from every angle.

Whatever your requirements in this small tool and equipment field, you'll find a quality-built Brown & Sharpe product to meet them. Brown & Sharpe Mfg. Co., Providence 1, R.I., U.S.A.



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SHARPE

BS

ALLEN O HEAD
PRESSUR-FORMING
GIVES A SCREW
EXTRA STRENGTH



... STRONGER
HEAD AND
STRONGER BODY



**EXTRA
STRENGTH**

FOR

SPECIFY GENUINE ALLEN O HEAD SCREWS

The Allen Pressur-Forming Method is now used to produce nearly all standard Allen screws. Instead of weakening the metal by cutting the steel fibres, it compresses them for extra toughness.

IF YOU BUY FOR REPLACEMENT . . .

you'll buy less often if you are sure to get the extra strength Allen builds into precision fastenings.

IF YOU ARE DESIGNING OR IMPROVING A PRODUCT . . .

Allen technical development (available through Allen distributors or direct from the factory) leads the field. We work constantly with engineers of leading manufacturers toward the solution of problems involving fastenings and we invite your inquiry.



ASK HOE . . . There's no room for failure in the giant high speed presses that turn out America's newspapers — but there's room for thousands of space-saving Allen O Head screws in every Hoe press. This leading manufacturer standardizes on Allen O Head screws for dependability.

SOLD ONLY THROUGH LEADING DISTRIBUTORS

Write the factory direct for technical information and descriptive literature.



ALLEN 
MANUFACTURING COMPANY
Hartford 2, Connecticut, U. S. A.
NEW YORK, CLEVELAND, DETROIT, CHICAGO, LOS ANGELES

Entertainment Programs For Visitors Listed by Cleveland Association

An interesting program of unofficial events for visitors to the N.A.P.A. Convention in Cleveland, June 12-14, has been announced by N. O. Heimerdinger, publicity committee chairman of the Purchasing Agents Association of Cleveland.

A full program has been arranged for the ladies with a scenic tour through the finer residential area of the Cleveland suburbs scheduled for Monday morning (June 12), ending with a luncheon and entertainment at the Shaker Country Club.

For those arriving early, there will be a Pop Concert by the Cleveland Summer Orchestra at the Public Hall on Saturday evening, June 10th. Tickets will be available upon arrival at popular prices. For those interested, the Cleveland Museum of Art is holding its 32nd Annual May Show through Sunday, June 11th.

The Cleveland Association has reserved a block of good seats for the night game on Wednesday, June 14th, between the Cleveland Indians and the Boston Red Sox. Because these tickets must be returned five days prior to the game, anyone interested should send checks in before Friday, June 9th, to the Purchasing Agents Association of Cleveland, Inc., 1120 Midland Building, Cleveland 15, Ohio. Tickets are \$1.50 each. Those who purchase tickets will be able to pick them up at the reservation desk.

For those staying over, on Thursday, June 15th, there will be a tour arranged by the General Electric Co. to their lighting institute at Nela Park in nearby East Cleveland, Ohio. Buses will leave from downtown hotels in the morning and return to them in the late afternoon.

BROWN NEW PRESIDENT OF DALLAS ASSOCIATION

J. D. Brown of the General American Oil Company has been elected president of the Purchasing Agents Association of Dallas for the year 1950-51.

Other new officers are: first vice-president, R. E. F. Schmid, Continental Supply Co.; second vice-president, John R. Phipps, Ford Motor Co.; secretary, Louis McElroy, Dallas Power and Light Co.; treasurer, Ira C. Jared, Sun Oil Company. New board members are John Guynes, Magnolia Petroleum Co.; Herbert Morehouse, Watson Electric Supply Company; and Maynard Robertson, Briggs-Weaver Machinery Company. R. Linn Crockett, American Liberty Oil Company, retiring president, become national director.

A regular meeting of the association was held at the Melrose Hotel on Thursday, April 27. Guest speaker was Bruce D. Henderson, Manager of Purchasing and Stores for the Westinghouse Electric Corporation. Mr. Henderson's subject was "Purchasing Profits Through Inventory Control."

(Please turn to page 276)



snap judgment You-r-r Out! And,

"Umpires never make wrong decisions!" But, snap judgment can be very costly when it comes to purchasing containers for your products. You'll want to know about the consistent quality of the materials, the strength and protective features, the sharp, clear printing for your brand-name.

You'll also want to know your supplier and the services he renders. All are important to you because they vitally influence the sale and acceptance of your product. Your technically trained Chase Salesman is eager to give you this information. See him today.

- cotton bags of all kinds
- Topmill burlap bags

bags for all industry and agriculture...

- paper & Multiwall bags
- Saxolin open mesh bags
- combination bags, liners, and specialties.



CHASE BAG CO.

GENERAL SALES OFFICES

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BOISE • DALLAS • TOLEDO • DENVER • DETROIT • MEMPHIS • BUFFALO • ST. LOUIS • NEW YORK • CLEVELAND • MILWAUKEE
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OKLAHOMA CITY • PORTLAND, ORE. • REIDSVILLE, N. C. • HARLINGEN, TEXAS • CHAGRIN FALLS, O. • HUTCHINSON, KAN. • CROSSETT, ARK • SAN FRANCISCO

JUNE, 1950

Want Additional Product Information? See Page 19.

275

Ever Figure...

ACTUAL FLOOR WAX COSTS?

Figuring the cost of floor wax involves more than simply jotting down price per gallon. In addition to the cost of materials, you must reckon labor costs which...and this may surprise you...are as much as 10 times as great. When frequent re-waxings are required, it's the labor cost that makes floor maintenance expensive. That's where Gerson-Stewart's amazing new Super-Swiftsheen achieves real economy. Actual performance records show that Super Swiftsheen reduces the frequency of waxing by at least 1/2, in many cases by 2/3.



Write Today for **FACT PACKED Booklet**



**PROVES YOUR FLOOR WAX COSTS
AS MUCH AS \$22.00 PER GALLON**

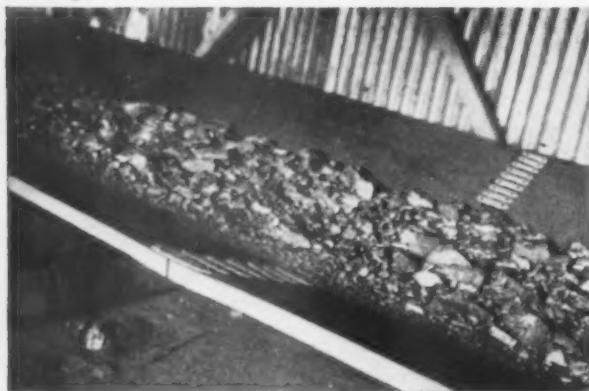
The **GERSON-STEWART Corp.**

LISBON ROAD • CLEVELAND, OHIO



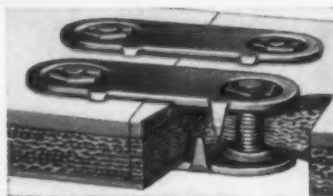
FLEXCO

BELT FASTENERS and RIP PLATES



**FOR HEAVY
CONVEYOR
AND
ELEVATOR
BELTS OF
ANY WIDTH**

- ★ FLEXCO Fasteners make tight butt joints of great strength and durability.
- ★ Trough naturally, operate smoothly through take-up pulleys.
- ★ Distribute strain uniformly.
- ★ Made of Steel, "Monel," "Everdur." Also "Promal" top plates.
- ★ FLEXCO Rip Plates are for bridging soft spots and FLEXCO Fasteners for patching or joining clean straight rips.



Compression Grip distributes strain over whole plate area

Order From Your Supply House. Ask for Bulletin F-100

FLEXIBLE STEEL LACING CO., 4697 Lexington St., Chicago 44, Ill.

R. C. WENZ ELECTED PRESIDENT OF PITTSBURGH ASSOCIATION

Russell C. Wenz, General Purchasing Agent, Philadelphia Company and Subsidiary Companies, was recently elected president of the Purchasing Agents Association of Pittsburgh. Mr. Wenz is also national chairman of the nonferrous metals committee of the National Association of Purchasing Agents.



Russell C. Wenz

Other officers elected were: vice-president, E. F. Schaefer, Pittsburgh & Lake Erie Railroad; secretary, C. H. Rindfuss, Pittsburgh Screw & Bolt Corp.; treasurer, Frank R. King, Colonial Supply Company; national director, M. E. Carlisle, Pittsburgh Plate Glass Company; two year directors, H. G. Cranston, John F. Casey Co.; Harry M. Mateer, Columbia Steel & Shafting Co.; J. E. McWilliams, Blaw-Knox Company; Chris Walden, Syntron Company; Theodore R. Zenk, Latrobe Electric Steel Company.

Guest speaker at the election night meeting was Arthur G. Hopcraft, Purchasing Agent, Cleveland Worm & Gear Company. Mr. Hopcraft's subject was "What Makes A Selling Salesman".

H. F. JONES GUEST SPEAKER AT BUFFALO ASSOCIATION MEETING

A regular meeting of the Purchasing Agents Association of Buffalo was held at the Hotel Niagara, Niagara Falls, N. Y., on Wednesday, May 10. Principal speaker was H. F. Jones, vice-president of N.A.P.A. for District 8. Mr. Jones' subject was "New Tricks for Old Dogs."

A humorous skit presentation was given by Robert Meehan.

As a special feature, the Descanters and Boys Chorus from the Children's Community Chorus of the Tonawandas appeared, directed by Lillian Sandbloom Wilder. Florence Rees was accompanist.

The meeting was preceded by a plant visitation to the American Brass Company, in Buffalo.

A meeting of sales executives and purchasing agents on Friday, May 26 was announced. The program committee consisted of Elson E. Holrod and George E. Buecheler, Sr.

(Please turn to page 280)

**seamless-welded
carbon-alloy-stainless**

TUBING SATISFACTION

for ALL

**pressure
and mechanical
requirements**



A good man to know

... Your B & W Tube Representative... because his factory training in "tube-technics", and specialized knowledge of applications may help you to uncover tubing economies in buying and applying carbon, alloy and stainless grades.

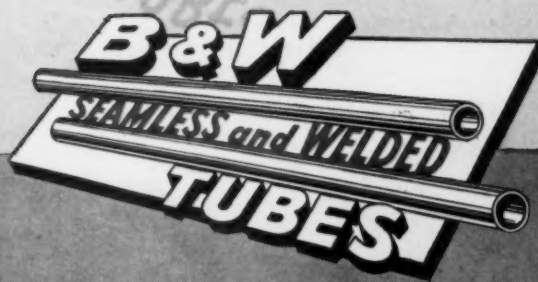
Say B & W
before you say TUBES... for
long-term service satisfaction
and economy.

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Visit our Booth 54 at INFORM-A-SHOW, Cleveland, O., June 11-14

P.A.'S PRAISE



V. S. CHIDLAW, Purchasing Agent
American Blower Corporation
Detroit, Mich.

"To keep price control over our inventory, we tie in fractional horsepower motor deliveries closely with our production schedule. That means we've got to have motors shipped on a flexible basis. When we use standardized motors, we get just that. We're all for it."



C. W. CLAUSER, Purchasing Agent
The Maytag Company
Newton, Ia.

"By using standardized motors on our conventional type washing machines, we have avoided a large part of the detail work that would be necessary with special models. Even when we developed the Maytag Automatic washer, we were able to use the same general type of motor with only slight modifications."



G. C. HENTSCHEL, Purchasing Agent
Clarke Sanding Machine Co.
Muskegon, Mich.

"We try to meet variations in small motor requirements—but we've still got to watch our costs. It's a definite help to us when we can order a standardized motor with all the advantages of a special job and at a price we like."



C. H. KISSEL, Purchasing Agent
Gould Pump Company
Seneca Falls, N. Y.

"By using standardized fractional-horsepower motors, our distributors and dealers have the full advantage of the motor manufacturer's exchange and service plans. Then we're sure every replacement will do the same job as the original motor."

GENERAL  ELECTRIC

700-101

STANDARDIZATION!

THEY LIKE the simplified buying—
the flexible deliveries—
the absence of inventory problems—
that come with using

STANDARDIZED MOTORS



STANDARDIZED Fractional Horsepower MOTORS



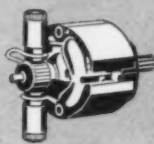
Gear-Motors



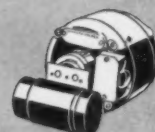
Home-Laundry



Sump Pump



Series Motors



Shaft-Mounted Fan



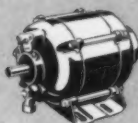
General Purpose



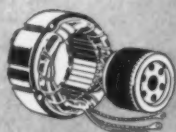
Jet Pump



Belted Fan



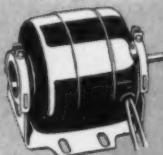
Gas Pump



Hermetic Refrigeration



Oil Burner



Unit-Bearing Fan


You can cut your motor costs by using G-E standard motors. Expert application engineering service to help you is yours for the asking. Call your G-E fractional-horsepower motor Sales Engineer in the nearby G-E Apparatus Department sales office. For general information on Fractional HP Motor standards, write for Bulletin GES-3565.


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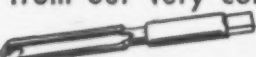
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CORCORAN GUEST OF SOUTH BEND ASSOCIATION

A regular meeting of the Purchasing Agents of South Bend was held in the LaSalle Hotel on Wednesday, May 10. Guest speaker was T. A. Corcoran, president of the National Association of Purchasing Agents. Mr. Corcoran was accompanied on his visit by Laurie C. Wakefield, Director of Purchases for Minnesota Paints, Inc., vice-president of District 4. Both officials spoke at the meeting.

Following the speaking program, there was an open forum discussion on reciprocity and loyalty to the seller.

1 1 1

SINCLAIR TO HEAD WESTERN MASSACHUSETTS ASSOCIATION

James G. Sinclair, Purchasing Agent of the Pratt & Austin Company, Holyoke, Mass. was recently elected president of the Purchasing Agents Association of Western Massachusetts for 1950-51.

Other officers elected were: vice-president, Bennett Pringle; second vice-president, Joseph A. Milner; secretary-treasurer, Carl C. Carlson. The retiring president, John B. Donovan, was named national director. The slate was presented by a nominating committee headed by Donald B. Sistare, and including Al Sanger and Ralph Benjamin.

1 1 1

AT PHILADELPHIA MEETING



(Top) Dr. Balderston, principal speaker. (Bottom) Hack Jones chats with Harold I. Patten, executive secretary of the association.

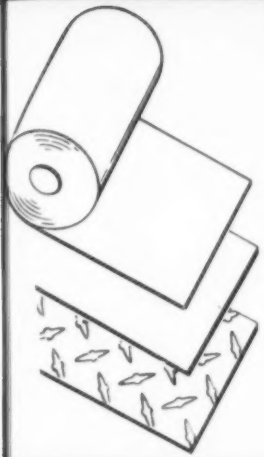
(Please turn to page 284)

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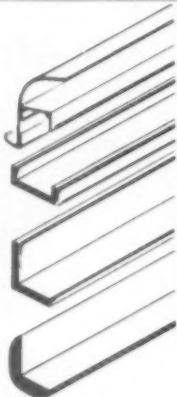
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NEW YORK, NEW YORK

• Whitehead Metal Products Co., Inc.

PHILADELPHIA, PENNSYLVANIA

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• Whitehead Metal Products Co., Inc.

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PORTLAND, OREGON

• Pacific Metal Company

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• Pacific Metal Company

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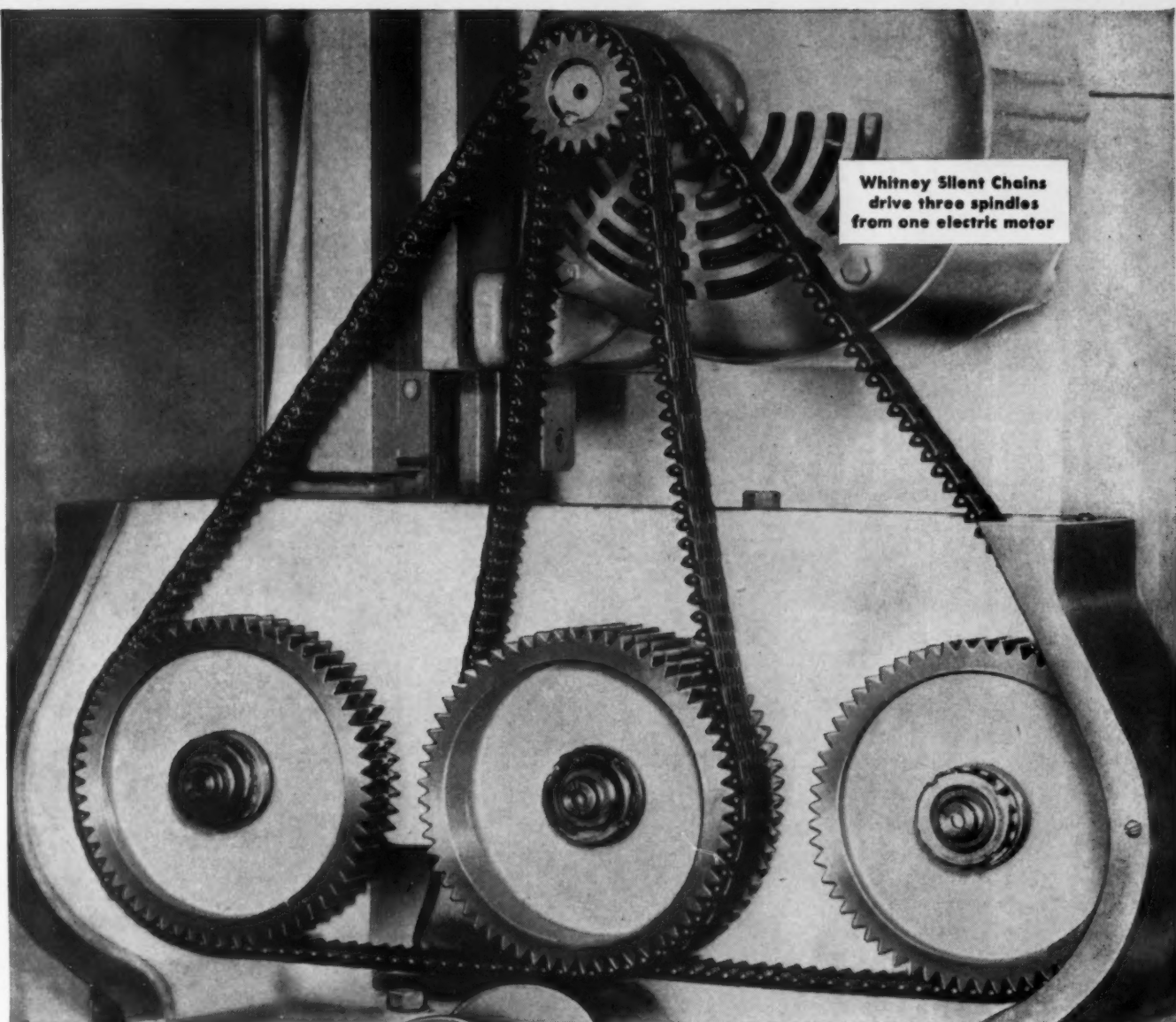
• Brace-Mueller-Huntley, Inc.
• Whitehead Metal Products Co., Inc.

TOLEDO, OHIO

• Williams & Company, Inc.

TULSA, OKLAHOMA

• Metal Goods Corporation

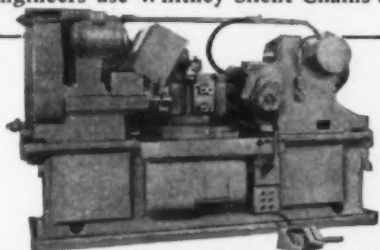


Positive Grip of WHITNEY Chain Drives Cuts Drive Maintenance Costs Delivers Full Rated Machine Output

Goss & DeLeeuw Chuckers Maintain Product Uniformity

This new "One-Two-Three" 7 spindle automatic chucking machine increases production on all classes of work requiring machine and threading operations on one, two or three ends. Due to the simple tooling arrangement and ease of set-up, the chucker is particularly adaptable to short runs. To assure positive power transmission on heavy work, Goss & DeLeeuw engineers use Whitney Silent Chains to drive the

three main spindles from one electric motor. Their experience proves that Whitney Silent Chains transmit full rated horsepower without friction or slippage. This means constant machine output is maintained...highest transmission efficiency is always obtained. And because they are constructed of hardened alloy steel parts, Whitney Silent Chains assure long life under severe operating conditions. It will pay you to investigate Whitney Silent Chain Drives for your products. Whitney products are readily available through a nationwide network of Whitney Distributors and Warehouses. Call the one nearest you for prompt service. For engineering assistance and catalogs, write:



Goss & DeLeeuw "One-Two-Three" 7 spindle Automatic Chucker

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Three years of actual, on-the-job testing have proved that Sawyer's NEOPRENE Latex Aprons are the most efficient and economical on the market.

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Sawyer's Neoprene Latex Aprons are *designed for the jobs they do*; they're roomy and comfortable and 100% water-proof. Available in black or yellow.

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ST. LOUIS ASSOCIATION HONORS PAST PRESIDENTS

The April meeting of the Purchasing Agents' Association of St. Louis held at the Sheraton® Hotel, honored the past presidents of the Association.

The St. Louis Association was started in 1916, and since that time has had thirty-two presidents. Twenty-two of them attended the meeting. Each was presented with a plaque in appreciation of services rendered. East past president present made a short comment on his administration. The past presidents were as follows:

Past Presidents

1916-17, R. E. Cowan, Ralston Purina Co.; 1918*, V. W. Bergenthal, Wagner Electric Co.; 1919*, Dr. F. W. Russe, Mallinckrodt Chemical Works; 1920, Kirk H. Taylor, Illinois Glass Co.; 1921, Kirke L. Bonnell, The Brecht Co.; 1922, A. J. Owings, Union Electric Light & Power Co.; 1923, J. A. A. Hecker, Curtis Mfg. Co.; 1924*, Paul R. Dolvin, McQuay-Norris Mfg. Co.; 1925, Wm. Grossman (Deceased), A. Leschen & Son Rope Co.; 1926, George A. Renard, St. Louis Screw & Bolt Co.; 1927, A. B. Bluhm, Fred Medart Mfg. Co.; 1928*, Walter M. Lowry, National Lead Co.; 1929-30*, Lee J. Bussmann, Bussman Mfg. Co.; 1931*, John S. Chapman, Midwest Piping & Supply Co.; 1932*, Chesterfield White, Emerson Electric Mfg. Co.; 1933*, Wm. Krueger, Ralston Purina Co.; 1934*, Norman N. Gould, Alcoa Ore Co.; 1935*, Dan M. Crimmins, McQuay-Norris Mfg. Co.; 1936*, Erwin H. Doht, Mallinckrodt Chemical Works; 1937, Lee J. Bussmann, Bussmann Mfg. Co. (second term); 1938, Wm. Grossmann (Deceased), A. Leschen & Son Rope Co. (second term); 1939*, Wm. G. Smith, James R. Kearney Corp.; 1940*, Herbert DeStaebler, Lambert Pharmacal Co.; 1941*, George H. Brown, Century Electric Co., and 1941*, Irving C. Pepel, General Metal Products Co.; 1941-42, John Higginson, Intercoastal Paint Corp.; 1942-43*, M. B. Covell, Union Electric Co. of Mo.; 1943-44*, J. E. Nolan, Scullin Steel Co.; 1944-45*, Paul O'Brien, Frank Adam Electric Co.; 1945-46, R. J. Brockman, Sefton Fibre Can Co.; 1946-47*, J. F. Parsons, Monsanto Chemical Co.; 1947-48*, L. C. Gragg, Hussmann Refrigerator Co.; 1948-49*, A. W. Soell, Gaylord Container Corp.; 1949-50*, D. M. Baker, Day-Brite Lighting, Inc. (still in office).

(* Indicates presence at meeting).

Educational Forum Held

Two educational forums were held before the meeting. "The Legal Aspects of Purchasing" was conducted by Herb Lurtz, and the topics of the discussion were: "Cancellation of Contracts" presented by John S. Chapman; and "Breach of Contract" presented by Edw. P. Dohrmann. The other forum, "Purchasing Know-How", was conducted by Arthur H. L. Hunnius, and the topics were: "Forecasting Market Trends" presented by C. F. Demmrich; and "Speculative Purchasing" presented by Wm. M. Bridwell.

(Please turn to page 286)

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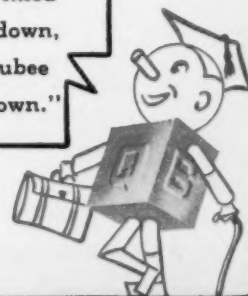
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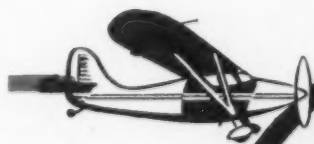
It pays to utilize our "know-how". After
all, Plastics is our business. Call "Cubee" the next
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Q-B Says:

"The next time you are stymied
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Hand your headache to Cubee
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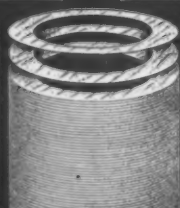
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For over twenty years **Bendix-Skinner** has specialized in solving the filtering problems that "couldn't be done." From this experience has come entirely new and exclusive filtering techniques which do even the work-a-day filtering jobs better and at lower long-range cost. Tell us about your problem—nine times out of ten **Bendix-Skinner** filters will supply the "finest" answer.

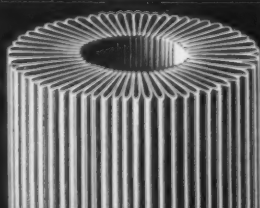
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OIL COMPANY OFFICIAL GUEST AT N. Y. ASSN. MEETING

A regular meeting of the Purchasing Agents Association of New York was held on Tuesday, May 16, at the Builders' Exchange Club, New York City.

Guest speaker was Frank W. Lovejoy, a sales executive of the Socony-Vacuum Oil Company. Mr. Lovejoy discussed the responsibilities of purchasing agents in fostering the free enterprise system, in a talk entitled "It's Later Than You Think".

A discussion of the economic and engineering factors influencing the selection of coal and oil as fuel, under the general topic "Coal versus Oil" was held during the forum in the afternoon. The guest speaker was Gerald B. Gould, president of Fuel Engineering Company, New York, N. Y. J. Ralph Walker presided during the question period.

The nominating committee of the association has reported a slate of nominees to be voted on at the annual meeting to be held on June 20. They are as follows: for president R. Park Lamborn, Kennecott Copper Corporation; for first vice-president, Edward A. Bantel, National Bureau of Casualty Underwriters; for second vice-president, John F. Snedeker, Sr., Binney & Smith Company; for treasurer, Edward B. Fielis; for member of executive committee (three year term), Walter M. Hoffman, American Oil & Supply Co.; G. Everett McMillen, Town of Montclair; (two-year term George Z. Turadian, A. & M. Karagheusian, Inc. The nominating committee is composed of D. M. Meeker, chairman; H. D. Barnett, George L. Geiger, G. Everett McMillen, and George F. Plate.

Mr. Lamborn's career in the profession and in association affairs extends over a period of more than 30 years in three different affiliated associations in the N.A.P.A. He has been president of the Purchasing Agents Association of Utah and later a member of the board of the Purchasing Agents Association of Northern California. For the past 16 years he has been a member of the New York association and is at present serving as vice-president and chairman of the program committee.

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NEW OFFICERS ELECTED BY NEW ORLEANS ASSOCIATION

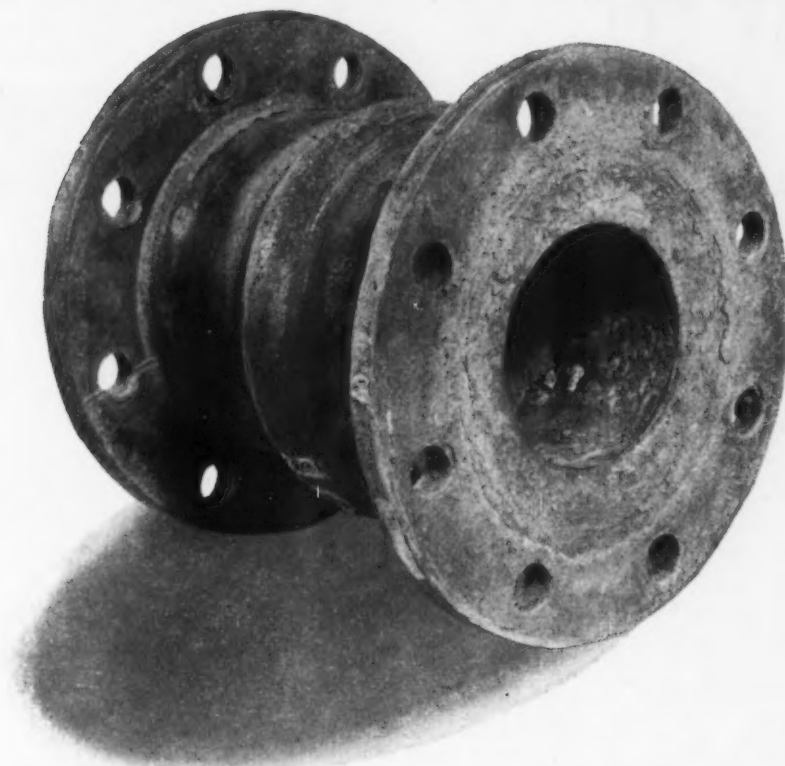
A regular meeting of the Purchasing Agents Association of New Orleans was held at the Jung Hotel on May 8. The affair was designated as Ladies' Night Meeting.

The principal address was made by Rabbi Leo Bergman of the Touro Synagogue, a noted speaker, on the subject "Human Relations, or How to Get Along With People".

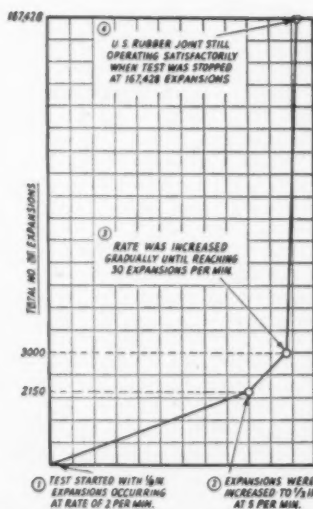
New officers for 1950-51 elected at the meeting are: president, Thomas Born; first vice-president; W. Hardy Klarquist; second vice-president, A. J. Clark; national director, George C. Bosworth; alternate national director, John Dastugue; treasurer, G. A. Lyncker; secretary, Frank J. Basile.

21 YEARS ON THE JOB

—and still in the pink!

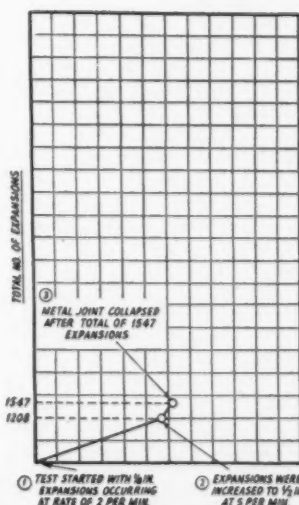


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Test of U. S. Rubber Expansion Joint

To determine comparative endurance, a U. S. Rubber Expansion Joint and a metal joint were subjected to the vibration tests described in the above charts. The metal joint collapsed after



Test of Metal Joint

1,547 cycles while the rubber joint was still operating satisfactorily after 167,428 cycles. A rigorous test for shock also demonstrated the superiority of the U. S. Rubber Expansion Joint.

An iron pipe line required replacement after 21 years of carrying a chemical refrigeration material. The "U. S." Expansion Joint photographed above was used as a flexible connection on this pipe line. When removed during dismantling of the line, the joint was found to be in sound condition—in fact it had outlasted the pipe!

United States Rubber engineers can design and build joints to meet conditions involving water, brine, oils, gases, acids and other chemicals. They can make practical recommendations for their use to take care of expansion, contraction, vibration and elimination of noise transmission and provide resistance to fire. Note the graphs at left, which show how "U. S." Expansion Joints behaved in a vibration test.

"U. S." engineers will gladly discuss and make recommendations for the solution of any problems you may have. Write to address below.

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"The Tools in the Plaid Box"

NEW ENGLAND ASSOCIATION ELECTS REANDO PRESIDENT

The Annual Meeting of the New England Purchasing Agents Association was held at the Hotel Vendome, Boston, on Monday, May 8.

New officers for the coming year, chosen at the meeting, are: president, S. H. Reando, Rockwood Sprinkler Co.; vice-president, F. A. Jepson, Achushnet Process Co.; treasurer, W. G. Hayward, Forbes Lithograph Manufacturing Co.; national director, J. R. Fuller, Sylvania Electric Products Co.; directors for two years, V. W. Godlesky, Beth Israel Hospital, W. F. Kopke, Jr. The Ucinite Co., Div. of United-Carr Fastener Corp., and R. E. Shillady, New England Power Service Company.

Guest speaker at the meeting was John L. Gillis, general manager of Monsanto Chemical Company, Merrimac Division. His subject was "What Management Expects of a Purchasing Department".

A technicolor sound film entitled "Meet Monsanto" was shown at the afternoon meeting. It covers the company's history, products, plants and people.

Members of the association visited the breweries of Haffenreffer & Company in the Jamaica Plain and Roxbury sections of Boston on May 17. Buffet lunch was served. The visit was arranged through Luther Davis, purchasing agent for the company.

1 1 1

RELATION OF COST SYSTEMS TO PURCHASING M.P.A.C. TOPIC

A regular meeting of the Metropolitan Purchasers Assistants Club was held at the Midston House, New York City, on Tuesday evening, May 9.

Guest speaker was Kermit Sidle, assistant controller of Ciba Pharmaceutical Products, Inc., whose subject was "A Review of Standard Manufacturing Cost Systems in Relation to Purchasing." A film entitled "Containers in the Making" was presented through the courtesy of the Kieckhefer Container Company.

The membership will vote at the June meeting on the following slate of officers for the 1950-51 year; for president, Robert O. Condit, American Oil & Supply Company; for vice-president, John J. Sharkey, Culbert Pipe & Fittings Company; for secretary, Peter P. Geleta, Johns-Manville Corporation; for treasurer, George L. Stapleton, Charles F. Hubbs & Company.

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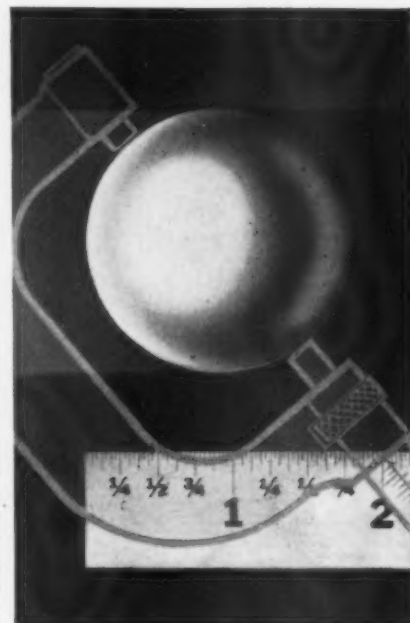
TORONTO ASSOCIATION VISITS GOODYEAR RUBBER PLANT

Members of the Purchasing Agents Association of Toronto visited the Goodyear Tire & Rubber Company of Canada Ltd., New Toronto, Ont., as part of their April 12 meeting. Dinner followed in the evening at the Royal York Hotel. Guest speaker was O. H. Barrett, assistant to the president of Goodyear.

(Please turn to page 290)

ONLY A BALL

has { one dimension
one surface



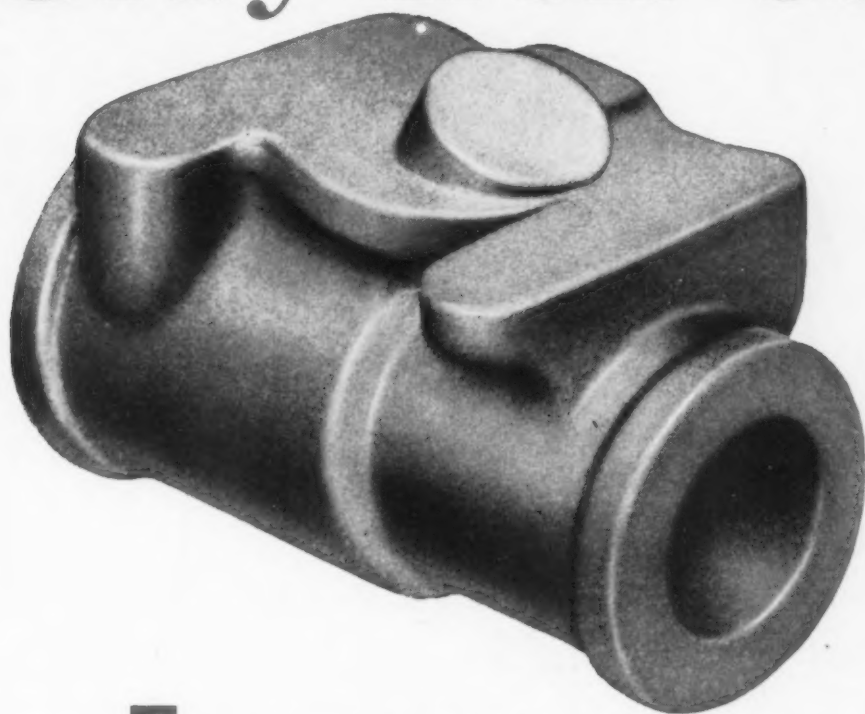
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Important not only in precision ball bearings, but also in the lot of other applications where Strom metal balls have been doing the job better. Strom has been in on a great many ball-application problems, and knows how important these two factors are for the best results.

Strom has been making precision metal balls for over 25 years for all industry and can be a big help to you in selecting the right ball for any of your requirements. In size and spherical accuracy, perfection of surface, uniformity, and dependable physical quality, there's not a better ball made.

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Threadwell Tools do many jobs



they can do your tough ones

For the answer you've been looking for, call in your nearest Threadwell Distributor. You can get his name as well as complete information by mailing the coupon below.

THREADWELL TAP & DIE CO., Greenfield, Mass.

Send me free Bulletins checked below

Name

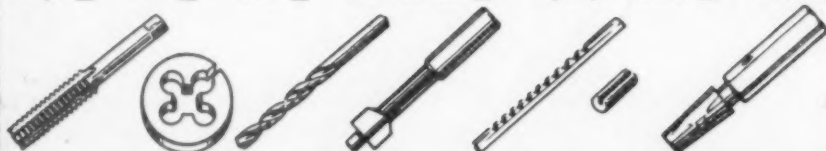
Position

Company

Street address

City Zone State

Taps ☐ Dies ☐ Drills ☐ Counterbores ☐ Keyway Broaches ☐ Gages ☐



Threadwell

NEW OFFICERS INSTALLED BY WASHINGTON ASSOCIATION

New officers of the Purchasing Agents Association of Washington were installed at the group's regular monthly dinner meeting held in the New Washington Hotel, Seattle, on Thursday evening, May 11. Frank C. Bergmann, retiring president of the state association, presided.

Incoming officials of the association are: president, Luther C. McIver, Puget Sound Power & Light Co.; first vice-president, Milton C. Staley, A. M. Castle & Co.; second vice-president, Ed A. Schlueter, Standard Oil Company of California; secretary, C. R. Ragsdale, Seattle Tent & Awning Co.; treasurer, Arthur Erickson, Union Oil Company of California; national director, Frank C. Bergmann, Pacific Coast Company; trustees for three year term, Edward R. Joubert, Puget Sound Power & Light Co.; Kenneth A. Knudson, Everett Pulp & Paper Co.; Harold E. Roslund, New England Fish Co.; trustees for one year term, T. F. Murphy, Spokane International Railroad Co., Inland Empire Group, and Robert T. Johnson, Blake, Moffitt & Towne, Tacoma Group.

A color motion picture entitled "Jet Propulsion" was shown. Produced by Walt Disney for the General Electric Company, the film explains through simple animation the principle and basic operation of the jet engine. C. R. Plum, manager of General Electric's aviation division in Seattle introduced the film and answered questions after it was shown.

1 1 1

HEINRITZ GUEST SPEAKER AT MONTREAL ASSN. MEETING

A regular meeting of the Purchasing Agents Association of Montreal was held at the Mount Royal Hotel on Tuesday evening, May 16.

Principal speaker was Stuart F. Heinritz, Editor of PURCHASING. Mr. Heinritz' subject was "This Business of Purchasing".

The nominating committee of the association recently submitted the following list of officers for the 1950-51 season: president, Fred G. Samis, Northern Electric Company; vice-president, Eric J. Wain, Canadian Industries Limited; second vice-president, John H. Carson, J. C. Wilson Limited; secretary, George Bourgeois, University of Montreal; treasurer, H. Maude, Canadian National Railways. Executive committee: Charles A. Devine, The Murphy Paint Company Limited; Gordon J. Glass, Elmhurst Dairy Ltd.; Alex. B. Wilson, Charles E. Frost & Co. Limited; G. C. Mathews, Steel Co. of Canada; Norman J. Smith, National Research Council, Ottawa, Ontario; immediate past president, Hugh P. Millar, Canadian Pacific Railway; national director, Hedley H. Vautier, Canadair Limited; Canadian Council, C. E. Stiles, Canadian Broadcasting Corporation.

(Please turn to page 292)

When You Specify SOLVAY Products for Soap...

... you get the ultimate in quality—the kind of quality you would expect from America's leading producer of alkalies. But in addition, you get the fast, dependable delivery service which can only come from a company having more than one plant . . . and over two hundred local stock points from coast to coast. Solvay's exclusive Technical Service is also available, at your request.

SOLVAY SALES DIVISION
ALLIED CHEMICAL & DYE CORPORATION
40 Rector Street, New York 6, N. Y.



**PRODUCTS
for the
Soap Industry**

SODA ASH

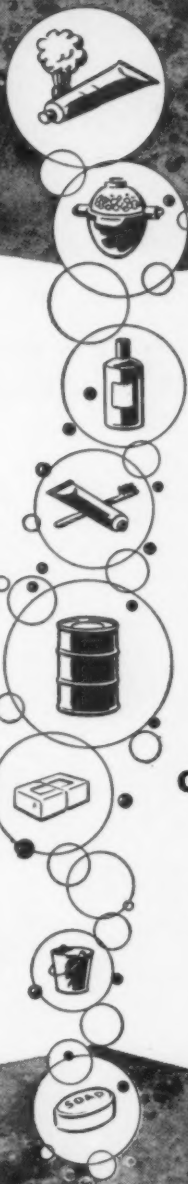
**CAUSTIC
POTASH**

CAUSTIC SODA

NYTRON

**POTASSIUM
CARBONATE**

**CALCIUM
CHLORIDE**



Soda Ash • Caustic Soda • Caustic Potash • Chlorine • Potassium Carbonate • Calcium Chloride • Sodium Bicarbonate • Specialty Cleansers • Sodium Nitrite
Nytron • Ammonium Bicarbonate • Para-dichlorobenzene • Ortho-dichlorobenzene • Monochlorobenzene • Methanol • Ammonium Chloride • Formaldehyde

NOW New Streamlined **RIDGID 65R**

Die Stock that **WON'T JAM**

while threading with power drive or by hand

New **JAM-PROOF** drive plate automatically kicks out driving ratchet pawl when standard length thread is cut... You don't have to watch it—lead screw can't jam on workholder.



Right Here is the simple foolproof mechanism that makes 65R automatically **JAM-PROOF**.

You can convert your present 65R to new JAM-PROOF type—buy new drive plate, put in place of old plate.

All other RIDGID 65R features remain the same

Perfect threads on 1" to 2" pipe with 1 set of high-speed steel dies—sets to pipe size in 10 seconds—mistake-proof self-centering workholder sets instantly—and now it's **JAM-PROOF**.

Buy new JAM-PROOF RIDGID 65R at your supply house

RIDGID

WORK-SAVER PIPE TOOLS

THE RIDGE TOOL CO. • ELYRIA, OHIO

MILWAUKEE ASSOCIATION PLANS INDUSTRY PRODUCT EXHIBIT

The Milwaukee Association of Purchasing Agency is again sponsoring a "Products of Industry Exhibit" which will be held in the Milwaukee Auditorium on October 17, 18 and 19. This will be the sixth exhibit of this type sponsored by the association.

The association reports that it is striving particularly to obtain working demonstrations as part of the show. It is planned to have exhibitors not only from local industries but from companies of national scope. Previous exhibits have drawn visitors from the purchasing, sales, engineering, supervisory and managerial professions in Wisconsin, Illinois, Michigan and Minnesota.

Frederic G. Syburg, Chain Belt Co., is general chairman of the affair. Other officials are: Frank A. Messar, Globe-Union, Inc., publicity chairman; Harold J. Jungbluth, The Oilgear Co., exhibits chairman; Carl W. Failmezer, Socony-Vacuum Oil Co., information chairman; James E. Barron, Pate Oil Co., treasurer; Clifford H. Dawley, Ampco Metal, Inc., secretary.

1 1 1

CONVENTION VISITORS INVITED TO G. E.'s NELA PARK

Delegates to the 35th annual convention of the National Association of Purchasing Agents have been invited to visit Nela Park, headquarters of General Electric's Lamp Department, on Thursday, June 15, the day following the convention.

It is estimated by Robert E. Worstell, in charge of arrangements for General Electric, that approximately 700 persons will take advantage of the opportunity to visit the 85-acre plot overlooking Lake Erie in East Cleveland. In addition, 300 lady visitors have been invited to Nela Park on the afternoon of Tuesday, June 13.

Worstell said plans were being made to schedule busses from the convention hall to Nela Park on the 15th. Visitors will be served lunch at noon.

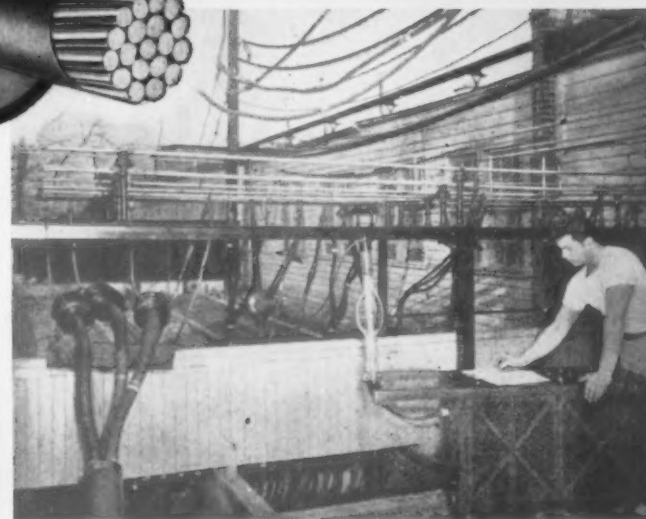
Highlight of the visit will be a tour through General Electric's world-famed Lighting Institute. Generally hailed as "The University of Light," the Institute has been visited by an estimated million persons during the past 30 years.

The Lighting Institute was designed to serve as a source of information about the light sources and their applications. It is a demonstration center for advanced lighting practices in the school, store, office, home, factory, restaurant, and elsewhere.

Administrative headquarters of the G-E Lamp Department since 1913, Nela Park employs 2000 people. It is a center of scientific research, lamp development, engineering, and is the home office for accounting, advertising, and sales. There are 15 principal buildings of Georgian architecture on the grounds.

The Thursday delegation of purchasing agents is expected to be one of the largest ever to visit Nela Park, according to Worstell.

a NEOPRENE SHEATH is no better than its **COMPOUNDING***



*"Too much stress cannot be laid on the important fact that the best neoprene products are produced by those manufacturers who are skilled in the art of compounding neoprene."

E. I. du Pont de Nemours & Company, Inc.

Neoprene is a raw material. With neoprene it is possible to make a cable sheath that combines resistance to weather, oils, chemicals, flame and ozone — thus increasing the life and versatility of an electrical cable. But the use of neoprene alone does not guarantee all its advantages.

The performance of a neoprene sheath depends on experienced compounding... the use of ingredients that give optimum characteristics and yet assure secure bonding to the insulation... the skill and technique of processing, applying and vulcanizing.

The Okonite Company, originator of neoprene-sheathed cables, has been producing them for nearly 20 years. Okonite's

neoprene sheath, called Okoprene, has an unequalled service record under every condition of use. Even at operating temperatures ranging from 75° C to below -18° C, Okoprene remains easy to handle and will not deteriorate. Cables protected with Okoprene do not develop harmful surface discharge.

Remember, it is necessary to compound the raw neoprene material with other ingredients in order to use it. It's the finished compound that counts. And — in these days of high installation and maintenance costs — the outstanding performance of an Okoprene sheath is more important than ever to true cable economy. The Okonite Company, Passaic, N. J.

THE BEST CABLE IS YOUR BEST POLICY

8108



OKONITE



SINCE 1878

insulated wires and cables

Bronze, Iron, Steel and Corrosion-Resisting Valves— POWELL MAKES THEM ALL!

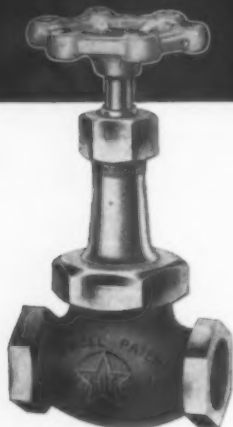


Fig. 1706—200-pound Bronze Globe Valve with screwed ends, union bonnet, renewable, specially heat treated stainless steel seat and regrindable, renewable, wear-resisting "Powellium" nickel-bronze disc.



Fig. 1832—200-pound Stainless Steel Gate Valve with screwed ends, screwed-in bonnet and inside screw rising stem.



Fig. 375—200-pound Bronze Gate Valve. Screwed ends, union bonnet, inside screw rising stem and renewable "Powellium" wear-resisting nickel-bronze disc.

Fig. 559—125-pound Iron Body Bronze Mounted Swing Check Valve with flanged ends, bolted flanged cap and regrindable, renewable bronze seat and disc. Disc when wide open, permits full, unobstructed flow through the valve body.

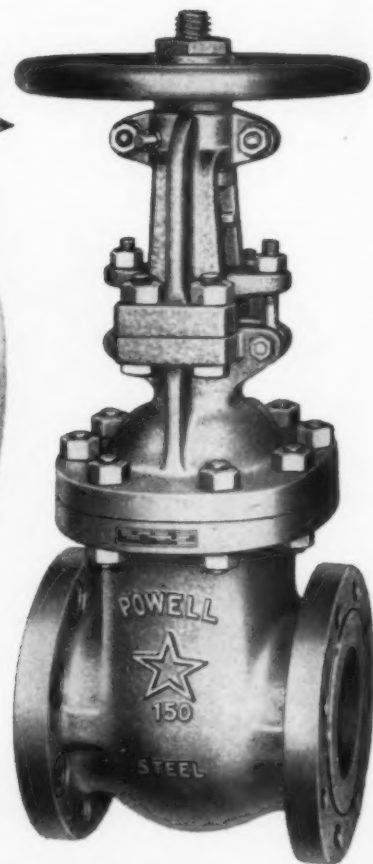


Fig. 1503—Class 150-pound Cast Steel Gate Valve with flanged ends, outside screw rising stem, bolted flanged yoke, tapered solid wedge.

The Complete Powell Line includes Globe, Angle, "Y", Gate, Check, Non-return, Relief and Flush Bottom Tank Valves in Bronze, Iron, Steel and a wide range of Corrosion-resistant metals and alloys.

Ask your nearest Distributor—or write direct

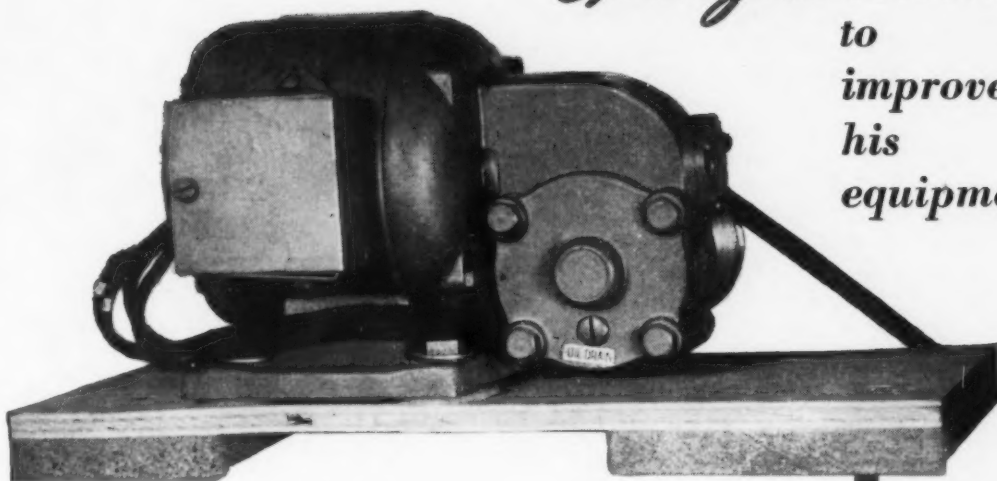
The Wm. Powell Co., Cincinnati 22, Ohio
DISTRIBUTORS AND STOCKS IN ALL PRINCIPAL CITIES



POWELL VALVES

*an
imaginative
photographer
uses*

Spongex[®] cellular rubber
to
improve
his
equipment



Portable motor no longer "walks" away from its job

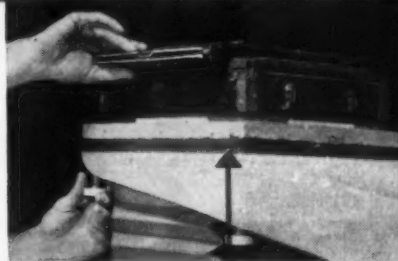
Jack Stock's portable motor "walked" away every time he put it to work. He mounted the motor on Spongex cellular rubber—now it stays on the job. Spongex absorbs the vibrations that give legs to portable motors.

Mr. Stock is in the commercial photography business; he doesn't manufacture motors. As a neighboring businessman in Shelton, he is well acquainted with the properties of Spongex cellular rubber. Now he mounts all his motors, stationary and portable, on Spongex.

Smaller illustrations show other ways Spongex helps to produce better results in Mr. Stock's business.

If you have a vibration, insulation, cushioning, gasketing, sealing or sound damping problem, think about *Spongex*. Cellular rubber does not become a "product" until you make it one in your application.

Technical Bulletin on Sponge Rubber available on request.



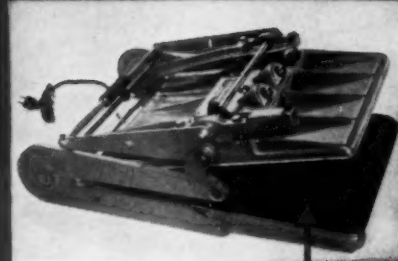
Seal against light and dust

In installing this copy camera attachment, custom made by Mr. Stock, on top of a photograph enlarger it was essential to block out dust and light. A Spongex gasket performs perfectly.



Uniform, dustless, printing contact

In place of felt, Mr. Stock substituted Spongex on this photograph printer. Contact on film negative is more uniform, and the tendency of felt to pick up dust is avoided.



Resilient compression pad

This dry mounting press is fitted with a resilient Spongex cellular rubber base. Spongex equalizes pressure to mount photographs evenly and more securely on their backings.

The World's largest specialists in Cellular Rubber

THE SPONGE RUBBER PRODUCTS COMPANY

304 Derby Place, Shelton, Conn.

BUSINESS IN MOTION

To our Colleagues in American Business...

An important part of Revere's contribution to American industry is rendered by the Technical Advisory Service. This is a body of capable engineers and technicians, located in all parts of the country, who collaborate with customers and prospects and in so doing provide liaison with Revere Research. Their work includes not only advice on the selection and specification of the Revere Metals for specific applications, but quite often involves the solution of manufacturing problems. The Technical Advisor, or "T.A." as we call him, has an extremely interesting job. One call may be upon a great shipyard, the next upon a jeweler, and the following one on a hardware manufacturer. Each T.A. tends to specialize to a certain extent along the natural lines laid down by his education and experience. Since the group is highly diversified, it is always possible to call into service the man or men most familiar with a given industry or problem. Here are several instances of the work done by Revere T.A.s.

● A shipyard was using electrolytic copper to make large-diameter pipes to carry cooling water to the condensers. The copper was purchased in sheets, formed into shapes of varying degrees of complexity, and brazed. The T.A. suggested that while electrolytic copper can be brazed, phosphor-deoxidized copper is far superior. He recommended that a trial be made of a few sheets. During a subsequent call on another matter the T.A. asked what the results had been. He was told that the phosphor-deoxidized copper

was very much better; the ease of forming and brazing saved a great deal of time, more than making up for the extra cost of the alloy.

● The manufacturer of a clothes dryer reported difficulty in drilling aluminum tube and aluminum extruded shapes, due to burrs around the holes. The drills used were found to be unsuitable for the purpose, so the T.A. obtained a high-spiral drill, ground it to the right rake and point angles in the Revere machine shop, and tried it out on samples from the customer's order. Clean holes were produced with almost no burring. Elimination of

a de-burring operation reduced manufacturing costs.

● A large hardware manufacturer was buying and stocking too many types of materials, many of them differing only slightly. The T.A. Service collaborated with the engineering and production departments, and recom-

mended simplified specifications for 225 items out of 360. Result: purchase of larger quantities in the most economical sizes, with reduction of inventories, and lessening of clerical work. The first year showed a saving of about \$25,000.

In reporting these three examples Revere gives itself no special credit, since work of this kind is undertaken by suppliers in all industries, paper and glass, chemicals and plastics, felts, rubber, and so on. The point we stress is that you can obtain not only materials, but also the know-how and knowledge back of them, if you but allow your suppliers to work closely with you. Why not try it? The results may amaze you.



REVERE COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801



Executive Offices:

230 Park Avenue, New York 17, N. Y.

LANCASTER GROUP VISITS LUKENS STEEL PLANT

Members of the Manufacturers' Association Purchasing Agents Club of Lancaster, Pa., toured the plant of the Lukens Steel Company at Coatesville, Pa. on April 18.

A dinner and business meeting was held at the Coatesville Country Club following the tour. J. Fred Weise vice-president in charge of sales for Lukens, was the principal speaker. Robert L. Harner, president of the club, presided.

New officers for the coming year, elected at the May meeting, are as follows: president, R. H. Anderson, New Holland Machine, Div. Sperry Corp.; vice-president, J. M. Lafferty, Posey Iron Works, Inc.; secretary, William Lawton, Armstrong Cork Company; treasurer, T. J. Bergen, Radio Corporation of America; directors, F. Roland Bitzer, U. S. Asbestos Division; C. B. Flick, Champion Blower & Forge Company; Robert L. Harner, Everite Pump & Manufacturing Co.; John E. Leshner, Pennsylvania Water & Power Company; and H. W. Mason, Miller Hess & Co., Inc.

The annual May meeting of the club was held on May 10 at the Stevens House. The affair featured cocktails, dinner, four acts of entertainment, and dinner music.

CHATTANOOGA ASSOCIATION ELECTS NEW OFFICERS

New officers for the coming year were elected at the April meeting of the Purchasing Agents Association of Chattanooga, held in the Hotel Patten.

H. L. White is the president. Other officers are: vice-president, T. A. Cubine; secretary, C. L. Jack; treasurer, E. C. Wooten; national director, W. W. Igou.

Certificates were presented to 21 members who had successfully completed the course on industrial purchasing offered by the University of Tennessee extension division, and sponsored by the association. The certificates were awarded by Dean Lowery of the university.

Speaker of the evening was George Cole, purchasing agent, Alabama Power Company, Birmingham, Ala., whose subject was the educational program of the National Association of Purchasing Agents.

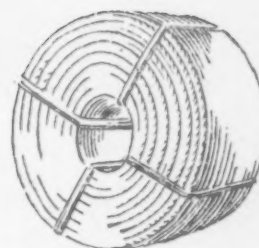
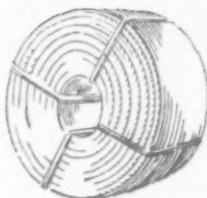
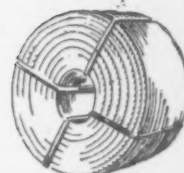
EASTERN NEW YORK ASSN. SEES STEEL FILM

A regular meeting of the Purchasing Agents Association of Eastern New York was held at Wolferts Roost Country Club, Albany, N. Y., on Thursday, May 18. Features of the meeting were a report on general business conditions by R. M. Bleak, and the showing of a film entitled "Steel-Man's Servant", presented through the courtesy of United States Steel Corporation.

The annual outing of the association has been scheduled for June 22 at the White Sulphur Springs Hotel, Saratoga Lake.

(Please turn to page 298)

"all ropes look alike to me!"



... maybe, but tests prove they don't all last alike

At a glance, all new ropes may look alike, but there can be a vast difference in construction. This affects strength and length of service. And, in the final analysis, length of service is the true measure of your rope cost.

Here is evidence that similarity in appearance does not mean similarity in performance.

Plymouth periodically tests all brands of rope. Recent tests—based on tensile strength, and giving other brands the benefit of an assumed rate of deterioration equal to SHIP BRAND—show that when the average life of ten other brands was 4.8 months, then the life of

PLYMOUTH SHIP BRAND was 6 months!

On that basis, you would have to buy rope at 9¢ less per pound before you could approach SHIP BRAND's low cost per month to use!

PLYMOUTH CORDAGE COMPANY
Plymouth, Massachusetts

Prove Plymouth Savings Yourself
Send for unique cost-of-service chart. With it you can quickly figure what it is actually costing you to use your present rope, and how much you could save by using Plymouth.

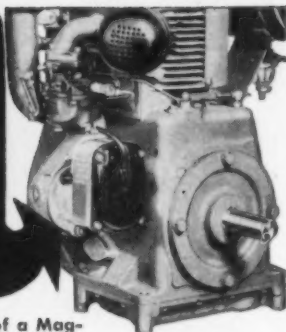
SEE AND HEAR "THE PLYMOUTH STORY." If you have not yet seen this color, sound film, write for an early showing. It shows how much more Plymouth puts into its ropes, so that the user may get more out of them.

PLYMOUTH
Cordage Products



THE ROPE YOU CAN TRUST BECAUSE IT IS ENGINEERED FOR YOUR JOB

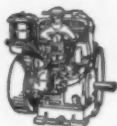
Why **WISCONSIN** HEAVY-DUTY *Air-Cooled* ENGINES Have a Rotary- Type **OUTSIDE MAGNETO**



Perhaps you have never given much thought to the placing of a Magneto on an engine, nor whether it's of the "flywheel" or "Rotary" type. It's an important point because the magneto is really the heart of the engine. When it fails, your power fails.

Wisconsin engineers have found through long experience and experimentation that the best place to put the magneto, not only for convenient accessibility but for better ignition performance over an extended period of time is on the **OUTSIDE** . . . with an independent, direct drive from the engine to the Magneto. The Rotary Type high tension magnetos used by Wisconsin Air-Cooled Engines provide the greatest protection against ignition troubles because the Magneto itself is a complete, independent operating unit that doesn't rely on an unrelated part of the engine for its successful operation. It's tightly sealed against dust and moisture, of course, so it isn't affected by wet weather or snow and there is no chance of it getting "fouled up". And it's equipped with an *Impulse Coupling* that provides a quick, hot spark for easy starting in any weather, in any climate, a feature that can't be incorporated in flywheel-type magneto.

Yes, the **MAGNETO** is important . . . both as to type and placing on the engine. It's the right kind and in the right place on Wisconsin Heavy-Duty Air-Cooled Engines. Specify "Wisconsin" for your 3 to 30 hp. power needs. . . . Descriptive literature on request.



MOST
H.P. HOURS

WISCONSIN MOTOR CORPORATION

World's Largest Builders of Heavy-Duty Air-Cooled Engines
MILWAUKEE 14, WISCONSIN

SMALL **PARTS** Cost less when made by **MULTI-SWAGE**

The economy way to get
a million small parts
similar to these —

Examine the tubular and solid metal parts shown here twice size. If you use anything similar . . . in quantities of over a million . . . important savings can be yours. Send us the part and specs. Our quotation will show why the Bead Chain Company's **MULTI-SWAGE** Process has long been known as the most economical method of making electronic tube contact pins, terminals, jacks and sleeves. And, why more and more users of mechanical parts (up to 1/4" dia. and to 2" length) employ our facilities. **WRITE** for Data Bulletin.

THE BEAD CHAIN MANUFACTURING CO.,
Tr. Mark 88 MOUNTAIN GROVE ST., BRIDGEPORT 5, CONN.

LADLEY NAMED PRESIDENT OF WILMINGTON ASSOCIATION

Edwin S. Ladley, Hercules Powder Company, was elected president of the Wilmington Purchasing Agents Association at a meeting held recently. He succeeds Thomas E. Stevens, Du Pont Company, who becomes national director.

Other new officers are: vice-president, J. W. Johnston, Atlas Powder Company; secretary, W. R. Bovard II, Hercules Powder Company; treasurer, John M. Brentlinger. New members of the board of directors are: E. D. Ramsaur, Du Pont Company; T. A. MacDonald, Eastern Malleable Iron Company; and J. C. Logan, Joseph Bancroft and Sons Company.

1 1 1

MILWAUKEE ASSOCIATION HAS TWO PLANT VISITS IN APRIL

Members of the Milwaukee Association of Purchasing Agents visited the Allen-Bradley Company at the regular monthly meeting on April 11. The commodity discussion and problem clinic was held in the late afternoon, and after dinner the various chairmen gave their reports. The company acted as host at dinner, and also served refreshments and distributed prizes.

The second plant visitation was held at the Massey-Harris Tractor plant in Racine, Wis. The visit took place in the morning, and luncheon was served at noon.

1 1 1

MONTREAL ASSOCIATION HAS ANNUAL EXECUTIVE NIGHT

The annual Executive Night meeting of the Purchasing Agents Association of Montreal was held on April 18 at the Mount Royal Hotel. Guest speaker was The Honourable Douglas C. Abbott, K. C., Minister of Finance for Canada.

A meeting of the Panel Discussion Group was held on April 25. The program centered on the Aluminum Company of America's sound film "This Is Aluminum", supplemented by an illustrated pamphlet distributed to those attending. George M. Mason, general purchasing agent of the Aluminum Company of Canada Limited, gave an oral preview of the film, and led the general discussion that followed.

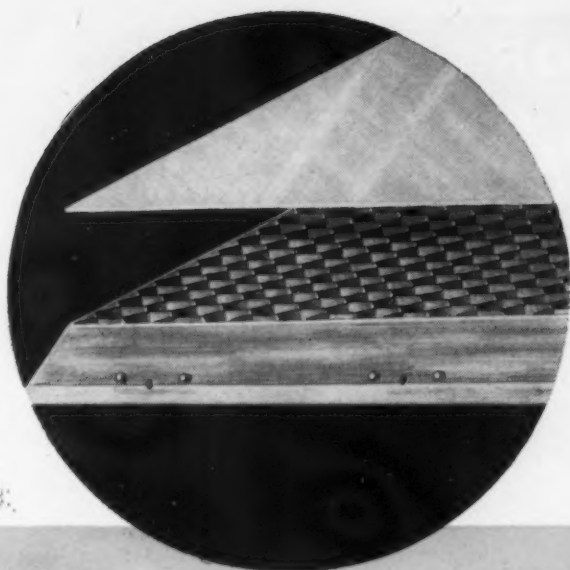
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CENTRAL ONTARIO ASSN. HAS ANNUAL LADIES' NIGHT

The annual Ladies' Night Meeting of the Purchasing Agents Association of Central Ontario was held Tuesday, May 16 at the Westmount Golf and Country Club, Kitchener, Ontario. The affair featured singing, films, and prizes for the ladies. The annual golf game of the association will be held on June 20 at Stratford.

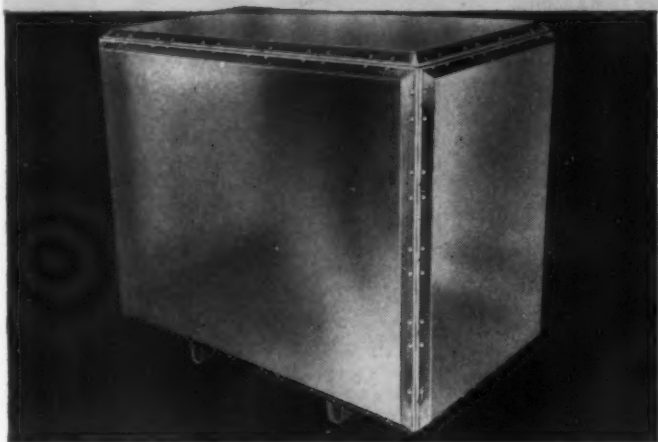
The April 18 meeting took the form of a plant visitation to J. M. Schneider Limited, where the group were guests of the company for dinner.

(Please turn to page 300)

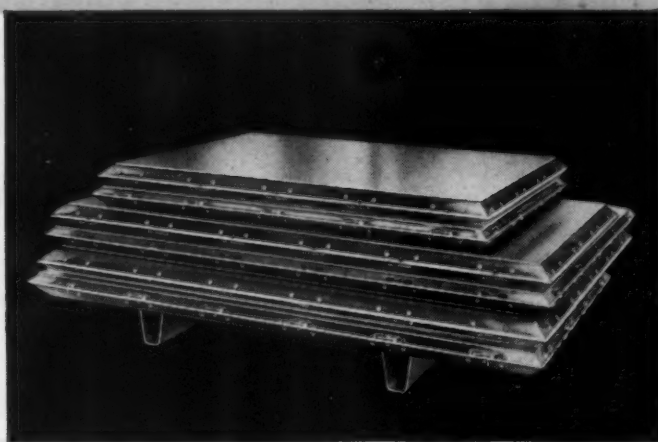


Honeycomb core is formed of BAKELITE resin-impregnated material. Core is permanently bonded to facings with BAKELITE resin adhesives to form a rigid, lightweight, high-strength panel.

New honeycomb laminates knock down shipping costs!



Special fasteners make it possible to assemble panels into pressure-tight, moisture-tight, easily cleaned shipping boxes in sizes up to $\frac{1}{2}$ carload capacity.



After delivery, boxes can be knocked down in a matter of minutes to reduce bulk . . . save shipping space and costs. This complete box weighs only 150 pounds, has 30 cubic feet carrying capacity.

Want a shipping container that reduces costs because it is easily taken apart for return shipment in the flat—and can be used over and over again? That's your cue to look into the new honeycomb laminated boxes developed by U. S. Plywood Corporation and made possible by BAKELITE Phenolic Plastics.

This unique engineering achievement provides lightweight, high strength panels that are easily assembled into knock-down boxes that greatly reduce shipping weight—and costs. Moreover, these boxes offer high compressive and bending strength . . . good thermal insulating properties . . . a very low water vapor transmission and high resistance to decay.

BAKELITE Resins and Adhesives are used throughout. The honeycomb core material is formed of special paper stock or cotton sheeting impregnated with

BAKELITE Phenolic Resin. The treated core stock is then cured to desired rigidity after which it is bonded to the aluminum facings with resin-base adhesives.

Honeycomb laminates may have a place in your plans for more efficient distribution. Discover how they can be put to work for you. Write Dept. AK-25.

Data courtesy of U. S. Plywood Corporation,
55 W. 44th St., New York 18, N. Y.

Bakelite
TRADE-MARK
Phenolic
LAMINATING PLASTICS



BAKELITE DIVISION, Union Carbide and Carbon Corporation, 30 East 42nd Street, New York 17, N.Y.

PURCHASE FOR

Profit!

Guaranteed
ECONOMY

Better
LIGHT

Improved
EFFICIENCY

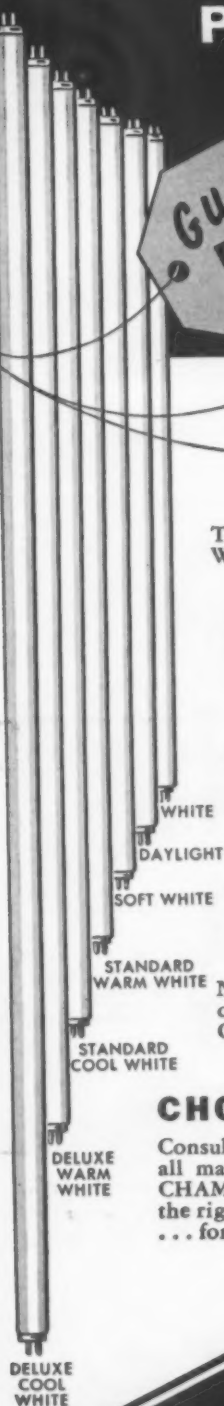
These are proven facts about Champion Fluorescent Lamps. With them you profit 3 ways:

1. All Champion Bi-pin Preheat Fluorescent Lamps are guaranteed for 7500 long-life hours, on burning cycles of 3 hours or longer. This means no replacements (no maintenance and no labor besides cleaning) for nine hundred and thirty seven 8-hour working days — a 66 $\frac{2}{3}$ % savings in lamp costs alone!
2. Additional light output from Champion's new long-life cathodes. For example: at 4000 hours this Champion Lamp produces as much light as do other, older types of fluorescent lamps at 1200 hours — and fully 6% more light at any number of burning hours.
3. This increase in lighting efficiency means improved working efficiency... better work and more of it in industry and offices... better display and more sales in stores, restaurants, theatres and shops.

No other lamp exceeds the Champion 7500-hour Fluorescent Lamp in lighting efficiency... in lamp economy. Champion means business!

CHOICE OF 7 COLORS OF WHITE

Consult your Jobber. He knows Fluorescent Lamps, all types, all makes. Take his experienced advice when he recommends CHAMPION — the guaranteed 7500-hour Fluorescent Lamp in the right "color" of white for your individual needs... for Quality... for Efficiency... for Economy.



CHAMPION LAMP WORKS

Lynn, Massachusetts

A DIVISION OF CONSOLIDATED ELECTRIC LAMP CO.

COMBINED MEETING HELD BY MICHIGAN ASSOCIATIONS

A combined meeting of the Purchasing Agents Associations of Central Michigan, Saginaw Valley, Grand Rapids and Muskegon was held at the Owosso Country Club, Owosso, Mich., on May 9.

Guests at the meeting were T. A. Corcoran, president of the National Association of Purchasing Agents; Laurie Wakefield, vice-president for District 4; and Chester Ogden of the Detroit Association, vice-president elect for the district.

The affair began at noon with a luncheon meeting at Sepeter's Hunt Room in Lansing, Mich. A golf party was held in Owosso in the afternoon. The general meeting was held in the evening following dinner.

New officers of the Central Michigan association, elected at the April meeting, are: president, Clive Rosenbrook; first vice-president, Monty Turner; second vice-president, Len Butters; secretary, Frank Adams (re-elected); treasurer, Dick Carter; National director, Lorris Russell.

1 1 1

LOAN ASSOCIATION OFFICIAL GUEST OF HAWAIIAN ASSN.

E. L. Clissold, manager of the State Savings & Loan Association, was guest speaker at the April noon meeting of the Purchasing Agents Association of Hawaii, held in the Smile Cafe, Honolulu. Mr. Clissold described conditions in occupied Japan, where he spent the past two years establishing a mission for the Mormon church.

Lionel Lino, Hawaiian Electric Company, president of the association, announced plans for leaving on April 15 to attend the district council meeting scheduled for April 20, 21 and 22 in Vancouver, B. C.

1 1 1

ANNUAL NORTHWEST CONFERENCE HELD IN VANCOUVER APRIL 21

The fourteenth annual Pacific Northwest Purchasing Agents Conference was held in Hotel Vancouver, Vancouver, B. C., on April 21 and 22. Theme of the conference, which enjoyed a record attendance, was "Purchasing at the Half Century".

T. A. Corcoran, president of the National Association of Purchasing Agents made his official visit to the Northwest at the conference. Mr. Corcoran addressed the delegates at the noon luncheon on April 21. The district council meeting was held on April 20.

On the unofficial side, men visitors played golf Saturday afternoon, while the ladies were enjoying tea and a style show in world-famous Stanley Park. Delegates from Oregon, Washington and British Columbia, Hawaii, Los Angeles, and Salt Lake City were among those attending.

(Please turn to page 302)

ELECTRIC HAMMERS • ELECTRIC

SHEARS • ELECTRIC SAWS • DRILL

STANDS • H

BRUSHES • HA

BLADES • GRIN

DRILLS • BENCH

BLE GRINDERS

SANDERS • P

DRIVERS • NU

TRIC IMPACT

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BLADES • GRINDING WHEELS •

DRILLS • BENCH GRINDERS • PORTA-

BLE GRINDERS • DIE GRINDERS •

SANDERS • POLISHERS • SCREW

DRIVERS • NUT RUNNERS • ELEC-

TRIC IMPACT WRENCH • TAPPERS •

ELECTRIC HAMMERS • ELECTRIC

SHEARS • ELECTRIC SAWS • DRILL

STANDS • HOLE SAWS • WIRE

BRUSHES • HAMMER TOOLS • SAW

BLADES • GRINDING WHEELS •

DRILLS • BENCH GRINDERS • PORTA-

BLE GRINDERS • DIE GRINDERS •

SANDERS • POLISHERS • SCREW

DRIVERS • NUT RUNNERS • ELEC-

TRIC IMPACT WRENCH • TAPPERS

• ELECTRIC HAMMERS • ELECTRIC

SHEARS • ELECTRIC SAWS • DRILL

STANDS • HOLE SAWS • WIRE

BRUSHES • HAMMER TOOLS • SAW

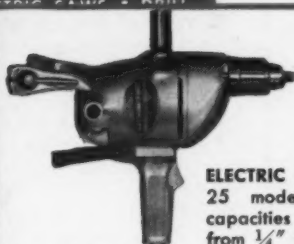
BLADES • GRINDING WHEELS •

DRILLS • BENCH GRINDERS • PORTA-

BLE GRINDERS • DIE GRINDERS •

SANDERS • POLISHERS • SCREW

DRIVERS • NUT RUNNERS • ELEC-

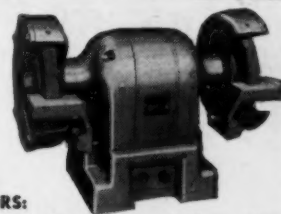


ELECTRIC DRILLS: 25 models with capacities ranging from $\frac{1}{8}$ " to $1\frac{1}{4}$ "

in steel, double in hardwood. Drive twist drills, wood augers, Hole Saws. Choice of handles, speeds for efficient operation.



PORTABLE SANDERS: Amazingly versatile. Drive abrasive discs, saucer grinding wheels, wire cup brushes, planing heads. Four models, in 7" and 9" disc diameters. New 7" Junior model is ideal for intermittent service, touch-up jobs.



BENCH GRINDERS:

Speed tool sharpening, grinding, wire brushing, buffing, etc. Four models, 6" to 10" wheel diams. Adjustable tool rests. "Constant speed" motors.



PORTABLE GRINDERS: Four models, 3" to 6" wheel diams., bring the tool to the work to speed up grinding, wire brushing, buffing. Perfectly balanced. Powerful motors. All vital parts fully protected against abrasive dust and dirt.



SCREW DRIVERS: 25 models drive anything from delicate screws to nuts and bolts up to 1" diam. Positive and adjustable clutches, 90° angle head models for working around corners. Choice of speeds in many models.



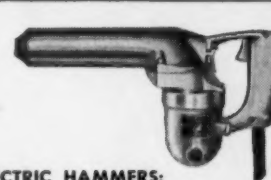
ELECTRIC IMPACT WRENCH: Runs and removes nuts and bolts up to $\frac{3}{8}$ " thread size. Hammers loose stubborn fastenings. No twisting, turning, to fatigue operator.



ELECTRIC "QUICK-SAWS" Ten times faster than hand sawing. Rip or crosscut; cut angles, grooves. Three models for cutting to maximum depths of $2\frac{3}{8}$ ", $2\frac{5}{8}$ ", $3\frac{1}{8}$ ". Easy to handle. Fully safeguarded.



PORTO-SHEARS: For fast, accurate cutting of ferrous and non-ferrous sheet, galvanized, stainless, etc. Easy to follow straight line or irregular pattern because cutting action is always visible. 12, 16, 18 gage models.



ELECTRIC HAMMERS: Drive star drills, bull points, chisels; for drilling, channeling, demolition, chipping, scaling; in concrete, stone, brick, metal, wood, etc. Four models. (rated for capacity in concrete): $\frac{1}{2}$ " to 2".

"VAN DORN" POWER means LOWER COSTS!

Take your pick for FASTER production, repair, construction!

Drilling, sanding, grinding, screw driving—you name the job and there's a Van Dorn Tool to help you do it better, faster, at lower cost! Check the spots in your plant where hand methods or outmoded tools are costing you time and money. Then switch over to modern, high-performance Van Dorn Tools!

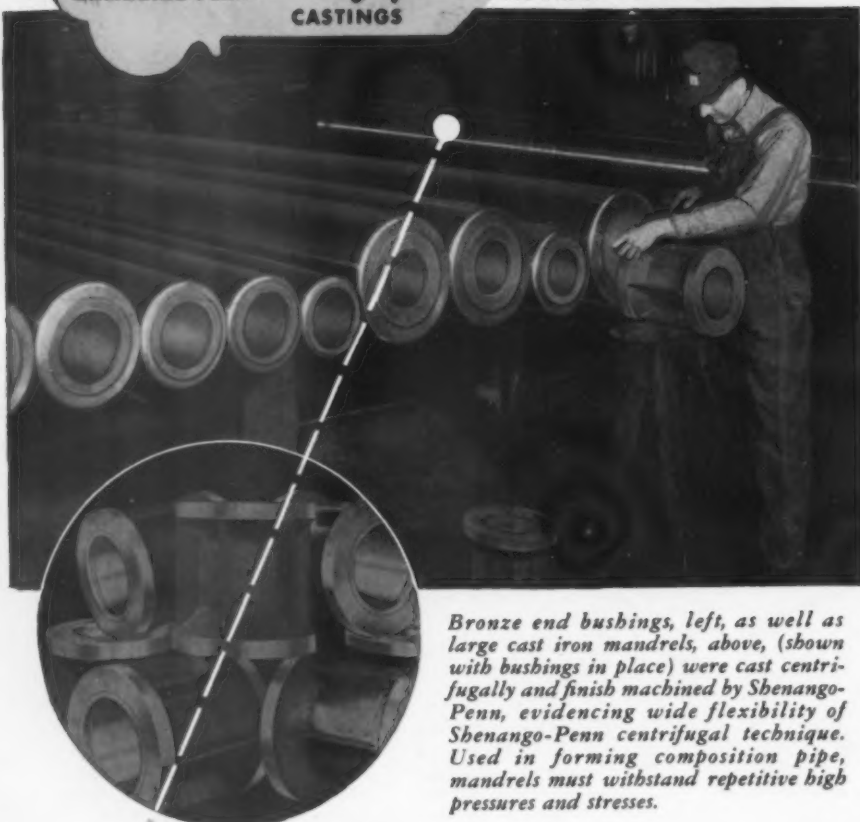
You have your choice of over 100 Van Dorn Tools, easy to handle, quality-built for top performance and long life. See your nearby Van Dorn Distributor for full details. Let him show you how to slash costs all down the line. Write for free, detailed catalog to: THE VAN DORN ELECTRIC TOOL Co., 764 Joppa Road, Towson 4, Maryland.

For Power
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Portable Electric
TOOLS

Div. of Black & Decker Mfg. Co.

SHENANGO-PENN*Centrifugal*
CASTINGS**... KEY TO SAVINGS**

Bronze end bushings, left, as well as large cast iron mandrels, above, (shown with bushings in place) were cast centrifugally and finish machined by Shenango-Penn, evidencing wide flexibility of Shenango-Penn centrifugal technique. Used in forming composition pipe, mandrels must withstand repetitive high pressures and stresses.

For high pressures, high stresses . . .

If you need rolls, or *any* symmetrical or annular parts requiring unusual strength, uniformity, wear resistance or freedom from porosity and defects, check with Shenango-Penn. These very qualities are inherent in the carefully controlled Shenango-Penn *centrifugal* casting process. You stand to save time and money . . . to avoid needless trouble.

Check also on Shenango-Penn's

modern machining and finishing service. It combines complete facilities and years of specialized experience to meet your specifications with over-all precision . . . another time-and-money saver!

For free descriptive bulletins, for specific data on ferrous or non-ferrous work, large or small, semi or finish machined, write to . . .

SHENANGO-PENN MOLD COMPANY

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Executive Offices: Pittsburgh, Pa.

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ALL RED BRONZES • MANGANESE BRONZES • ALUMINUM BRONZES
MONEL METAL • NI-RESIST • WEEHANITE® METAL

CLAYTON RAND SPEAKER AT PHILADELPHIA MEETING

A regular meeting of the Purchasing Agents Association of Philadelphia was held at the Bellevue-Stratford Hotel on Thursday evening, May 11.

Guest speaker at the dinner was Clayton Rand, editor and noted speaker, who appeared at the N.A.P.A. convention banquet in New York in 1947. Mr. Rand's subject was "Is London Bridge Falling Down?"

The afternoon forum featured a talk by Thomas D. Jolly, vice-president of the Aluminum Company of America and former president of the National Association of Purchasing Agents. Mr. Jolly, who is currently president of the American Standards Association spoke on "Standards".

1 1 1

U.S. STEEL OFFICIAL SPEAKS TO TWIN CITY ASSOCIATION

A regular meeting of the Twin City Association of Purchasing Agents was held in the Hotel Radisson, Minneapolis, on Wednesday, May 17.

Guest speaker was Bennet S. Chapple, Jr., assistant vice-president of the United States Steel Corporation, Pittsburgh, Pa. Mr. Chapple discussed the current situation in the steel industry.

The "Pre-Meeting Huddles" were revived at the session by the educational committee. As a starter, C. A. Vinci acted as moderator for a discussion of "Cash Discounts and How We Handle Them".

1 1 1

VANCOUVER ISLAND BRANCH ELECTS NEW OFFICERS

The Vancouver Island Branch of the Purchasing Agents Association of British Columbia recently elected the following new officers for 1950-51:

President, Ned Williams; vice-president, Gerry Sharpe; secretary-treasurer, Wally Dickson.

Bert Johnston of the Vancouver association, and Park Merrifield and Jack Hendrick of the Aluminum Company of Canada Limited presented the film "This Is Aluminum" at the April meeting. Discussion followed.

1 1 1

ATLANTIC STEEL COMPANY HAS OPEN HOUSE, PRODUCT SHOW

An Open House and Southern Agricultural Implement Show was held in Atlanta, Ga. on May 4, 5 and 6, under the sponsorship of the Atlantic Steel Company, Atlanta.

The show was a result of the company desire to combine the interests and points of view of the general public, its customers, and its own employees, and demonstrate to each group how it fits into the over-all picture of producing and consuming steel products. Included in the events were tours through the plant and implement show, entertainment, drawing for prizes, etc.

in
here
they know

P&H

...the sign of
Added Values

You're looking down from the cab of a 75-ton overhead crane. You hear the rush of cables as the load comes up . . . the clang of the warning bell as you start to move. Familiar sounds to all who work with heavy loads.

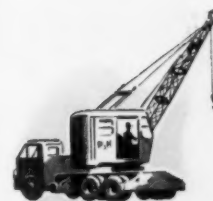
But no more familiar than the emblem on the crane — **P&H**

It's the sign of Added Values, on traveling cranes the world over — values resulting from better design . . . sturdier construction . . . job engineered operating features. And now — Magnetoque*, the new type AC control, provides the smoothest, most efficient control ever known on overhead cranes. It's another example of *Quality and Service* which have distinguished all P&H products since 1884.

*Trademark of Harnischfeger Corporation.



OVERHEAD CRANES



TRUCK CRANES



SOIL STABILIZERS



HOMES



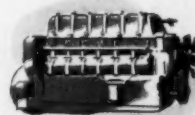
EXCAVATORS



ELECTRIC HOISTS



WELDING EQUIPMENT



DIESEL ENGINES

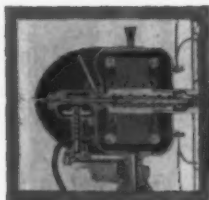


it pays to FAN-PLAN

WITH EMERSON-ELECTRIC OSCILLATORS



Stationary hollow-steel shaft is case-hardened and rigidly anchored in the motor frame.



Forced-feed lubrication—oil is continuously fed to bearing surfaces by spiral grooves and conveyor return.



Fingertip oscillation control—lets you simply "dial" any sweep, from 90 degrees to stationary.

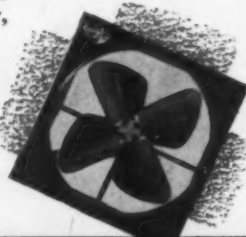


The life of a fan depends largely on the life of its *bearings*. In Emerson-Electric 12- and 16-inch AC Oscillators, the rotor revolves on a stationary, case-hardened steel *shaft* . . . forming an oil-tight, smooth-running, and virtually wear-proof bearing. This exclusive feature, and others, account for the exceptional quietness and the longer service—with less servicing—these popular fans give. For lasting low-cost comfort, it pays to fan-plan with America's standard fan value. See your electrical contractor, or write for free Catalog No. 550A.

THE EMERSON ELECTRIC MFG. CO.
St. Louis 21, Mo.

Everything in Fans!

Besides the most complete line of Oscillating Desk and Stand Fans, Emerson-Electric offers Direct- and Belt-Drive Exhaust Fans, Air Circulators, Ceiling Fans, Window Fans, and Low Table Fans. Write for Catalog No. 550B.



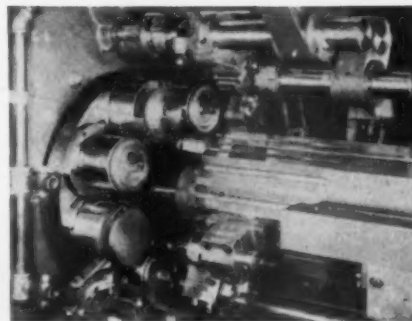
EMERSON
MOTORS • FANS



ELECTRIC
APPLIANCES

Addenda Cost-Saving Case Histories

LABOR COSTS REDUCED 85%



By the installation of an eight-spindle automatic chucking machine, Underwood Corporation, Hartford, Conn., replaced seven machines and six operators, and increased production of cast iron type bar segment from 90 to 120 pieces per hour. Labor costs were reduced 85%. Quality of part was greatly improved with tolerances held under .001".

COST SAVING ITEM—450

ELIMINATE THREE STEPS IN RUST PREVENTION



When Wallace Barnes Company, Bristol, Conn., oil-slushed high quality steel coils to prevent rust during shipment, it was also necessary to individually wrap the coils in a grease-proofed wrapper. These operations were eliminated by the adoption of a chemically coated liner for the container that gives off rust preventive vapor. Also, the customer was pleased because the oil-free coils did not require "cleaning".

COST SAVING ITEM—451

(Please turn to page 308)

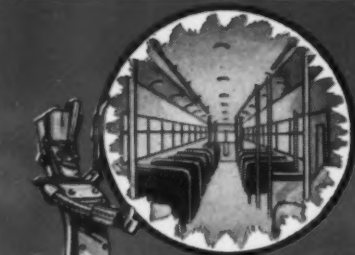
SPECIFY "Standard" STAINLESS for product improvement

Build in the quality your product needs to meet the challenge of competitive markets with "Standard" Welded Stainless Tubing. In many applications the ultimate cost of Stainless is less than tubing made from other materials. And you get smarter, more attractive styling—rugged durability—corrosion and heat resistance—in a tubing that can take it. "Standard" Stainless is easy to fabricate, resulting in more economical manufacturing techniques for you. Let Standard's 25 years of tubing experience assist you in developing methods for product improvement requiring the use of high quality Welded Stainless Steel Tubing.

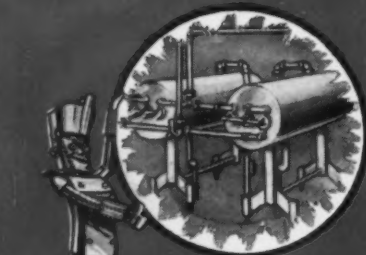
SIZE AND THICKNESS CHART for STAINLESS STEEL TUBING

TUBE DIAMETER	MAXIMUM WALL		MINIMUM WALL	
*O.D. SIZE	DECIMAL	B. W. GAUGE	DECIMAL	B. W. GAUGE
3/8"	.035"	20	.025"	23
1/2"	.035"	20	.025"	23
5/8"	.049"	18	.028"	22
3/4"	.049"	18	.028"	22
7/8"	.065"	16	.028"	22
1"	.083"	14	.028"	22
1-1/8"	.083"	14	.028"	22
1-1/4"	.083"	14	.028"	22
1-3/8"	.083"	14	.028"	22
1-1/2"	.095"	13	.035"	20
1-5/8"	.095"	13	.035"	20
1-3/4"	.095"	13	.035"	20
1-7/8"	.095"	13	.035"	20
2"	.095"	13	.035"	20
2-1/4"	.095"	13	.035"	20
2-1/2"	.095"	13	.035"	20
2-3/4"	.095"	13	.035"	20
3"	.095"	13	.035"	20

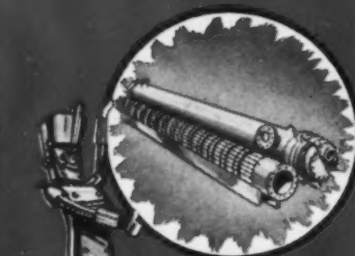
*Intermediate sizes within the range indicated can also be manufactured. Please consult us for sizes not listed.



Adds durability, beauty and ease of maintenance to withstand rough treatment in transportation equipment.



Indispensable for sanitation and corrosion resistance in dairy processing equipment.



Has longer life ultimately lowering costs in heat exchangers for high and low temperatures or corrosive services.



Universally used in beverage dispensing units—promotes cleanliness and longer life. Can be readily coiled.



Light wall welded stainless tubing used with threadless fittings for transmission of corrosive fluids. Reduces initial cost.



Unsurpassed for high temperature service such as aircraft exhaust manifolds and heating units up to 2000°F.

THE STANDARD TUBE CO.

Detroit 28,

Michigan

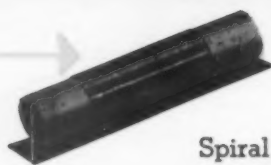
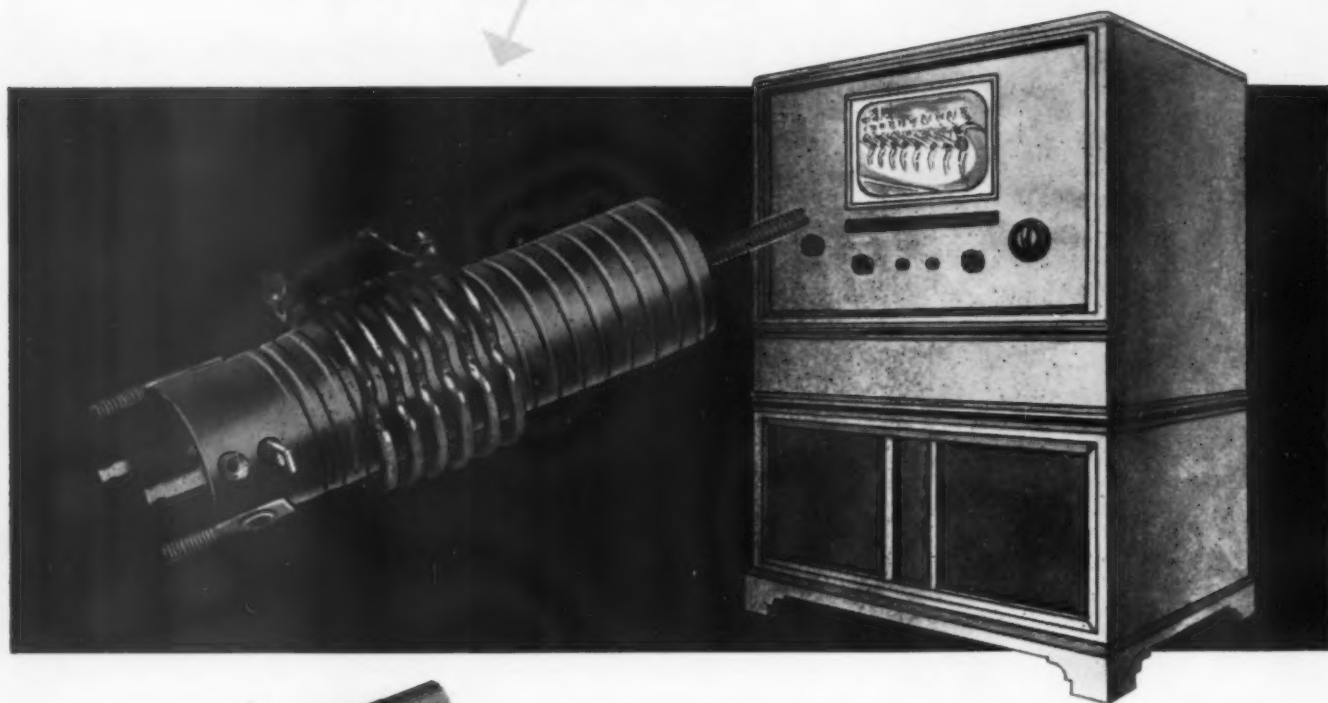
Welded Tubing

Fabricated Parts

STANDARDIZE with "STANDARD"—It Pays

another C-D development . . .

a strong, lightweight, LOW-COST tubing for your electrical applications



Spiral Tubing—one of the many developments that have helped bring television into the mass market. Recently introduced by Continental-Diamond laboratories, it is ideal for electrical, radio, and television applications where a good dielectric tubing with high strength and lightweight is needed. It is available in a variety of sizes and grades to meet requirements for low moisture absorption, forming, riveting, drilling, tapping, etc.

It is another example of why it pays to see C-D first in your search for the right plastic. C-D Plastics provide *practical* combinations of mechanical, electrical, and chemical properties—structural strength, lightweight, moisture, heat and corrosion resistance. For fast delivery, or help with material selection problems, call your nearest C-D office, any time.



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Continental - Diamond FIBRE COMPANY

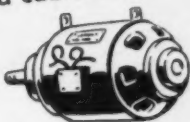
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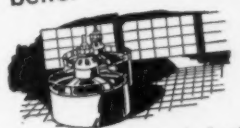
wire design has made possible smaller, more compact motors.



A new and better form of heat resistance in turn prevents failure in



generators.



Again, if a sharp turn can



be possible. New

abrasion characteristics



given a wire, a new and better clock may

may mean milady's iron won't fail. A

records in performance. As simple a thing as better shielding in a wiring

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can be the secret of clearer radio and television reception.

Auto-Lite Engineers, drawing on their many years of automotive experience,



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on the "right wire for the right job" write on your company letterhead to

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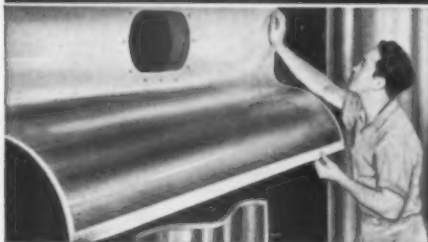
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INDUSTRIAL TAPE

DOZENS OF SPECIFIC TAPES
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TYPICAL POLYKEN PRODUCTION JOBS



Tape No. 524—prevents "contact" oxidation.



Tape No. 158—protects machine parts in production.



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PRODUCTION MEN credit one or more of the many versatile **POLYKEN** Industrial Tapes with savings up to 85%! These "specific tapes for specific uses" can help *you* cut costs, save time, improve methods!

Replaces Old-Fashioned Methods!

Each **POLYKEN** Industrial Tape replaces costly, inadequate, hard-to-handle materials, for bundling, tying, sealing, edging, holding, insulating, reinforcing, repairing, marking, masking—and many others.

Meets Special Adhesive Needs!

Adhesive masses of **POLYKEN** tapes can be made with one or more of these "built-in" qualities: non-corrosive, non-staining, heat- or flame-resistant, low or high tack, vulcanizable, low temperature, colored, transparent, strong anchorage to backing.

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POLYKEN's cloth backings can include any of these qualities: tensile strength, thickness or thinness, non-transparency, flexibility, resistance to tearing, abrasion, weather, moisture vapor.

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To help you choose the right tape for your job, write to-day for your **FREE** copy of "Tape Is a Tool." Or our research department will gladly work with you. Write **POLYKEN**, Dept. 9-6.



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SAVE \$3500 ON COOLING SYSTEM INSTALLATION



The Hotel Sherman in Chicago faced a problem in air conditioning its new seafood restaurant. The main system lacked capacity to handle the additional load. Space for a separate installation required expensive alterations. Answer was found in activated carbon air recovery. Air volume of 7000 cfm was drawn in from supply side of main system through six air recovery cells and thence to the restaurant furnishing fresh, odor-free air at the rate of 20 air changes per hour. As compared to the installed cost of a separate cooling system, net savings are estimated to be about \$3,500. Operating savings are about \$100 annually.

COST SAVING ITEM—452

1 1 1

**STORAGE INCREASED 200%
STORAGE TIME CUT 5 TO 1**



Illustration shows 2000 lb. electric fork in truck in use by the West End Brewing Co., Utica, N. Y. Reports from the company indicate that the storage time was cut by the ratio of 5 to 1, breakage was reduced by 8%, and the use of the truck resulted in 20% increase in the number of cases which could be efficiently stored in the warehouse. Due to the ease of handling pallet loads, storage of returned bottles and cases in a given area was increased 200%.

COST SAVING ITEM—453
(Please turn to page 310)

These Features Save You Money	For These Reasons	It's a Worthington—
1 Two-piece QD sheave—rim and hub separate	Mount light hub first, then slide heavier rim on tapered hub	EXCLUSIVE
2 Choice of one or two-piece assembly	Mount hub and rim separately, or loosely assemble hub on rim and slide on shaft together	EXCLUSIVE
3 Split hub	Easy to mount, even on oversized shaft	ORIGINAL
4 Clamp screw in hub	Holds hub in position on shaft while setting or removing rim	EXCLUSIVE
5 Taper-mated hub and rim	Mount easily in any position—no key-way between taper surfaces	ORIGINAL
6 Large, long pull-up bolts	Hold better and more uniformly	EXCLUSIVE
7 Friction cone grip	Tightening rim on hub gives positive press fit on shaft	ORIGINAL
8 Shaft key lock (set screw over keyway)	Prevents key from drifting	EXCLUSIVE
9 Quickly-detachable (QD)	Pull-up bolts used as jack screws to remove sheave rim	ORIGINAL
10 Interchangeable rims	Hubs for every bore—lower inventory cost	ORIGINAL
11 No realignment problem	Clamped hub holds shaft position—new rim tightens up in exact alignment	EXCLUSIVE
12 Choice of "A", "B", "C" and "D" grooves	"Tailor-made" grooves give proper belt "ride-out" for maximum life efficiency	ORIGINAL
13 I-beam spokes on driven sheave	Stronger—capable of carrying heavier load with less weight	EXCLUSIVE
14 Offset design of sheave	Reduces over-hang loads—increases bearing life	ORIGINAL
15 Worthington-Goodyear V-belts	Load-carrying cords in neutral axis reduce internal friction—each belt carries its share of drive load	ORIGINAL

WORTHINGTON



ORIGINATORS OF THE QD SHEAVE

WORTHINGTON PUMP AND MACHINERY CORPORATION
MULTI-V-DRIVE SALES DIVISION

Buffalo, N. Y. • General Offices, Harrison, New Jersey
POWER TRANSMISSION: sheaves, V-belts, variable speed drives
PUMPS: centrifugal, power, rotary, steam
AIR COMPRESSORS: water-cooled, air-cooled



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Industry*

How Does Your Drive Rate on the V-drive Scoreboard?

Here are 15 money-saving features of the most efficient V-belt drive. Only Worthington Multi-V-Drives give you all 15!



EASY TO GET ON



EASY TO GET OFF



YET
ALWAYS TIGHT
ON THE SHAFT

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Complete Range of Stock Sizes — Prompt Shipment. 853 listed stock sizes in "A", "B", "C" and "D" sections, fhp to 600 hp . . . 332 listed stock sizes of EC Cord V-belts. Send coupon for latest Worthington QD Sheave bulletin.

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COMPANY.....

ADDRESS.....

CITY.....ZONE.....STATE.....



Here's the blade that will help you cut costs . . . speed up tough metal cutting jobs. These new "Molyflex" High Speed Hand Hack Saw Blades combine the ability to cut the hardest materials with a toughness and resistance to breakage that is unsurpassed. They're shatter-proof too!

In recent tests, when pitted against eight leading competitive blades in cutting SAE 52100 ball bearing steel . . . STAR'S new "Molyflex" AVERAGED 23.8% MORE METAL CUT than all the leading brands tested!



STAR STEELRITE METAL MARKING CRAYONS

Ask your STAR distributor about these new and improved metal marking crayons. Available in a variety of sizes, these crayons, made of genuine soapstone by special extrusion process, are uniform in strength and composition. Markings can be made on hot, cold, damp or grimy metal and withstand pickling, yet do not affect enamel application.

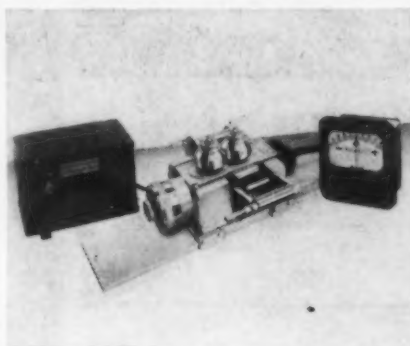


Get your free copy of STAR'S "Metal Cutting" Booklet and the STAR Wall Chart for your shop! Both are packed full of useful information and will help you get maximum results from hand, band and power hack saw blades.

CLEMSON BROS. INC.
MIDDLETOWN, NEW YORK

Manufacturers of Hand and Power Hack Saw Blades and Frames, Metal Cutting Band Saw Blades and Clemson Lawn Machines.

CONTINUOUS WIDTH GAGE EFFECTS ANNUAL SAVING \$25,000



Installation of continuous width gage with automatic control by wire manufacturer to control the manufacture of plastic-coated lamp wire, resulted in gross annual saving of approximately \$25,000. Diameter of wire approximates .145" across the narrow dimension, with an allowable tolerance of plus or minus .005". The operator, however, tended to keep the diameter in neighborhood of .147"-.148" to be on the safe side. After installation of the gage it was possible to keep the diameter between .141" and .142", thus effecting a saving of approximately .006"-.008" on diameter. Based on an extruding rate of 30,000 feet per hour, this reduction in the diameter of the extruded coated wire resulted in the saving previously mentioned.

COST SAVING ITEM-454

1 1 1

SAVE 60% ON HEAT TREATING



By the installation of a new high frequency induction heating unit, a large commercial plant greatly increased production, and reduced operating costs in the heat treating of a multitude of parts varying from small pins of approximately 1/4" diameter up to large gears weighing several hundred pounds. In one particular localized hardening operation, production rate on equipment originally used was 700 pieces per hour, with 30 KW input. With new 25 KW output vacuum tube induction heating unit, and improved fixture production, rate is over 2000 pieces per hour. With operating costs substantially the same, production increase provides a saving of approximately 60% on the heat treating of this part.

COST SAVING ITEM-455

(Please turn to page 312)

Federated BIG

4



BABBITTS

... For Every Bearing Need

White metal bearing problems can be successfully solved almost invariably by using one of the Federated Big 4 Babbitts — Thermodyne, Record, XXXX Nickel, and Merit Metal.

XXXX Nickel and Thermodyne are tough, dense-grained tin-base babbitts for heavy bearing loads at high speed operation.

Merit and Record are ductile, low-cost lead-base babbitts for lighter loads at more moderate speeds.

The Federated Big 4 branded babbitts are scientifically designed to answer most white metal bearing needs, and thus to simplify your purchasing problems. For special requirements, alloys of any composition can be supplied.

To order, or to obtain more information, call or write the nearest of Federated's 11 plants and 25 sales offices across the nation.

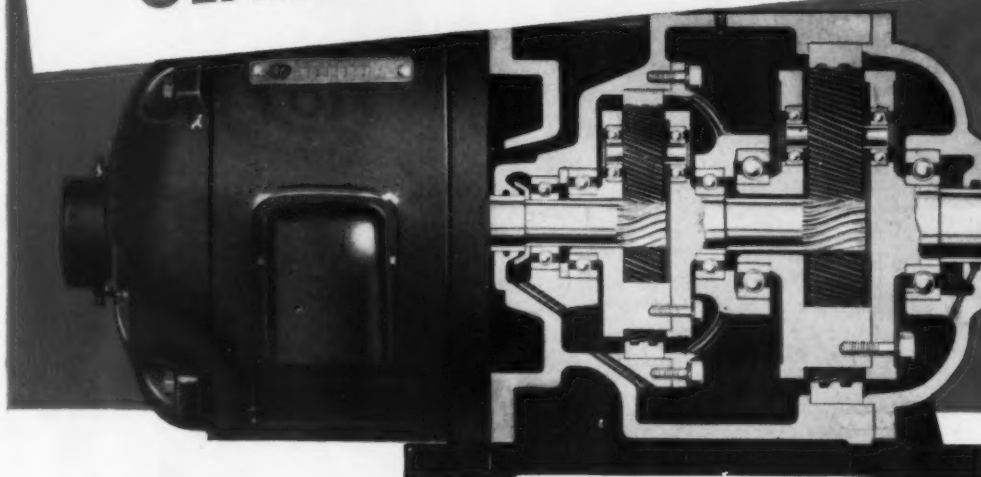
Federated Metals
Division



AMERICAN SMELTING AND REFINING CO.

for **LARGE DRIVES** ^{too}

GEAR-MOTORS—UP TO 150 hp.



THE GEAR SYSTEM IS A HONEY!

You get a compact, quiet planetary-gear system, designed for high efficiency and long life. Planetary gear reduction gives you smooth transmission with the greatest load-carrying capacity in the smallest space.

G-E *TRI/CLAD* gear motors... **compact, efficient, extra-protected**



At the Clark Hill Dam in Georgia, this 50-hp G-E gear-motor drives a belt conveyor off a secondary crusher. Tri-Clad integrated design provides necessary protection from weather.

Even for large low-speed drives up to 150 hp, there's a G-E gear-motor that can fill the bill. With it you eliminate separate gears or reducers, because you buy only one compact, pre-engineered power package. You save purchasing and engineering costs by specifying one unit to do the job.

In hazardous areas, too, G-E explosion-proof gear-motors offer extra protection for applications where open gears, belts, and pulleys are prohibited.

... and in addition to these features, you get:

UNIT RESPONSIBILITY—G.E. assumes unit responsibility for both gear and motor, whether it's rated at 1 or 150 hp. You avoid many design and purchasing problems.

PRE-ENGINEERING—G-E gear-motors are pre-engineered to work as a unit, give you the best possible combination of gear and motor for your job.

OVER-ALL PROTECTION—Integrated housing shields the whole unit from dust and dirt, permits application where chains and belts cannot be used.

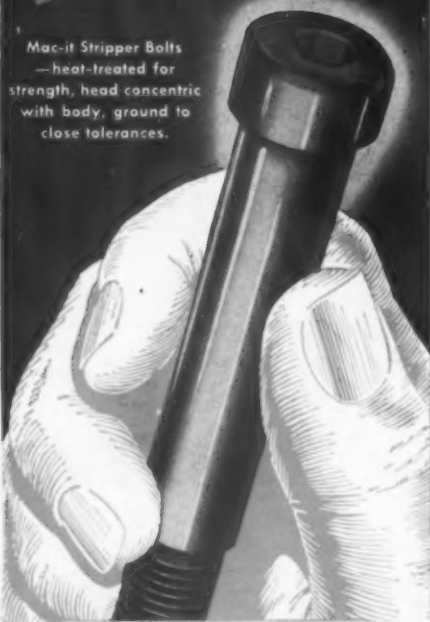
Standard ratings up to 75 hp are available from stock, and special quotations are issued for ratings up through 150 hp. To fill your needs on all gear-motor requirements, call your nearest G-E Sales Office or your local distributor. Apparatus Dept., General Electric Co., Schenectady 5, N. Y.

GENERAL  ELECTRIC

IT'S A

Mac-it
PRONOUNCED
"MACK-IT"

Mac-it Stripper Bolts
—heat-treated for
strength, head concentric
with body, ground to
close tolerances.



**Better, Faster Service
with this
Complete Mac-it Line!**

Because many standard types of Mac-its are available throughout the country for quick delivery, and because specials can be engineered to your own specifications, you'll find it pays to investigate Mac-its first.

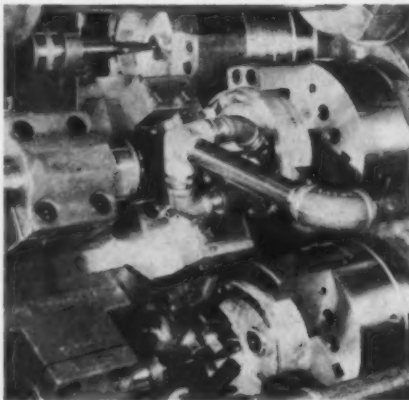
Mac-it's 35 years' experience in the manufacture of heat-treated, alloy steel screws is your assurance of precision, uniformity and strength. Sold through leading industrial distributors from coast to coast and in Canada. Write for new Mac-it catalog today!

Other Mac-it products include:

- Hollow Set Screws
- Hollow Pipe Plugs
- Socket Head Cap Screws
- Hollow Lock Screws
- Socket Screw Keys
- Square Head Set Screws
- Hexagon Head Cap Screws
- ... and many others

Marketed Nationally Since 1912 by
STRONG, CARLISLE & HAMMOND COMPANY
Cleveland 13, Ohio

PRODUCTION INCREASED 350%



By replacing four machine tools formerly used with six spindle automatic chucking machine, Wico Electric Co., West Springfield, Mass., increased production of difficult magneto rotor (aluminum die casting, steel hum insert, laminated steel insert with brass plate) some 350% and reduced the cost per piece 2.8 cents.

COST SAVING ITEM—456

1 1 1

**COPYING PROCESS SAVES
\$8,000 ANNUALLY**



The application of an exact facsimile, dry developing copying process to an order and receiving system is reported to be saving \$8,000 annually for one branch plant of a large rubber company.

A duplicate master, reproduced in seconds from a traveling requisition form kept on each item in stores inventory, makes possible all the copies needed in handling the purchase and receipt of mechanical supplies without rewriting of any fixed information. Pertinent information is added to the duplicate master both when material is ordered and when it is received and distribution copies quickly made each time.

The average company that orders 50 items per day through their purchasing department will find this elimination of rewriting particularly valuable in saving time, labor, and dollars, according to the manufacturer, Ozalid, a division of General Aniline & Film Corp., Johnson City, N. Y.

COST SAVING ITEM—457

(Please turn to page 314)

LOOK TO
CENTRAL



FOR SPECIAL
PAPER NEEDS

Avoid costly production lags . . . product failures . . . by using the right paper for your job. Central has been engineering specialized Industrial Papers for nearly 50 years . . . let us suggest the most efficient paper for your specifications.

Write for Free Booklet,
"PAPER HAS A FOURTH
DIMENSION."



CENTRAL PAPER COMPANY
INCORPORATED
2446 LAKESHORE DRIVE - MUSKEGON, MICH.

BRANCHES IN LEADING CITIES

Any ONE Of These 10 Advantages Will Pay For Your Fence



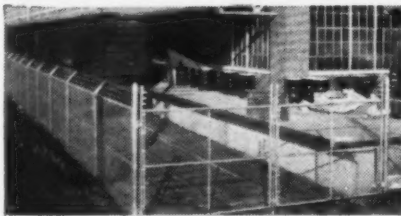
- Lasting Protection Against Theft, Vandalism
- Reduced Fire Risk, Lower Insurance Rates
- Better Appearance, Higher Property Value
- Increased Production, Better Inventory Control
- Reduced Expense in Guarding Property
- Increased Outdoor Storage Space
- Reduced Accident Incidence and Liability
- Increased Order and System
- Controlled Entrance and Exit on Property
- Greater Security, Peace of Mind

*CONTINENTAL *Chain Link* FENCE IS THE ONLY FENCE MADE OF *KONIK STEEL

No other fence provides such long-lasting day-and-night protection at such low cost per year of fence life. Continental Chain Link pays for itself with years of "care-free" service because it is made of KONIK steel—an open hearth alloy steel containing copper, nickel and chromium. These elements provide greater strength . . . extra resistance to rust and corrosion. They make Continental fence rugged and unyielding. If you want to know more about the fence that lasts for years and years, send for your free copy of "Planned Protection"—a complete manual on modern protection and control of property. Write Continental at Kokomo, Indiana, or contact our nearest sales office.

* TR. MKS. REG. U.S. PAT. OFF.

SHARE IN THESE EXTRA SERVICES



ENGINEERED FOR PROTECTION

Continental fence has 14 distinctive construction features including heavier line posts . . . stronger, smoother-working gates . . . improved pivot-type hinges . . . self-locking barb arms . . . full gage wire of KONIK steel . . . 20% more ties.



TAILORED TO FIT YOUR PROPERTY

Experienced fence engineers plan and help erect Continental Chain Link fence. They work with you, laying out the most effective and economical installation to harmonize with the character of your property.



CONTINENTAL STEEL CORPORATION

GENERAL OFFICES • KOKOMO, INDIANA

PRODUCERS OF Manufacturer's Wire in many sizes, shapes, tempers and finishes, including Galvanized, KOKOTE, Flame-Sealed, Coppered, Tinned, Annealed, Liquor Finished, Bright, Lead Coated, and special wire.

ALSO, Coated and Uncoated Steel Sheets, Nails, Continental Chain Link Fence, and other products.

Which one of these

Bond REG. U.S. PAT. OFF.

TRUCK CASTERS

is BEST for Your Job?



1A Series—Stationary Caster



3A Series—Single Ball Race Swivel Caster



3F Series—Single Ball Race Swivel Caster—Pipe Socket Base



3J Series—Single Ball Race Swivel Caster with Threaded Stem



3G Series—Single Ball Race Swivel Caster—Angle Base



14A Series—Tongue Swivel Caster



23A Series—Double Ball Race Swivel Caster



Spring Action Swivel Caster



36A Series—Double Ball Race Swivel Caster



40A Series—Double Ball Race Structural Steel Swivel Caster



41A Series—Structural Steel Stationary Caster



Dual Wheel Swivel Caster



V-Grooved Wheel Caster



Structural Steel Caster with Wheel Brake



Vulcanized-on Rubber Tread Wheel



Solid Rubber Wheel



15D Series—Swivel Stem Caster

BOND built-for-the-job Truck Casters assure efficient, profitable production! Write today for your copy of the Bond Catalog K-38—you'll find complete descriptions of the full line of Bond Casters and Wheels.

**BOND FOUNDRY & MACHINE COMPANY
MANHEIM • PENNSYLVANIA**

**VISION PROGRAM REDUCES
SCRAP LOSS 11% OR \$30,000**



In the Midwest, a large manufacturer of chains reduced his scrap losses by 11% in the year following the inauguration of a vision testing program. Through a visual survey, the company discovered that 15% of the employees were in need of visual aid, and then helped them to obtain professional examination. This resulted in increased visual efficiency of the employees which became translated into better quality work, and subsequent reduction in scrap loss amounting to \$30,000 in one year. Also, the program brought about a sharp drop in the accident rate.

COST SAVING ITEM 458

1 1 1

**REDESIGNED PISTOL GRIP
ELIMINATES COSTLY MACHINING**



Worcester Pressed Steel Co., Randolph St., Worcester 6, Mass., has reported how redesigning a pistol grip for a manufacturer of small power tools has eliminated expensive machining operations.

The mating grips, shown above, are produced in large quantities from .063" cold rolled steel. Redesigned from forgings by Presteel, the lighter and stronger stampings are now ready for assembly without the need of costly machining. Because the grip formation requires several radii that must be blended without affecting the height of the drawn piece, considerable development was necessary to avoid costly trimming. The lanced and formed slot presented a problem of tool maintenance which called for experience and skill in tool design and construction.

COST SAVING ITEM 459

**CLASSIFIED SECTION
SEE PAGE 430**

WICKWIRE ROPE

A PRODUCT OF

CF&I

Ask any user...you'll find them everywhere

In scores of industries, users of Wickwire Rope have developed an affectionate respect for its performance, safety and long life. And, for true economy, they use Wickwire's WISSCOLAY® Preformed. It lasts longer—is easier to cut, splice and install. It's kink-resistant and safer to handle. Wickwire Distributors and Rope Engineers, in key cities everywhere, are prepared to render prompt service in meeting your wire rope needs. Wickwire Rope Sales Office and Plant—Palmer, Mass.

IN THE EAST—Wickwire Spencer Steel Div. of C. F. & I.
500 Fifth Ave., New York 18, N. Y.

IN THE ROCKIES—The Colorado Fuel and Iron Corp.
Continental Oil Bldg., Denver, Colo.

ON THE WEST COAST—The California Wire Cloth Corp.
1080—19th Ave., Oakland 6, Cal.



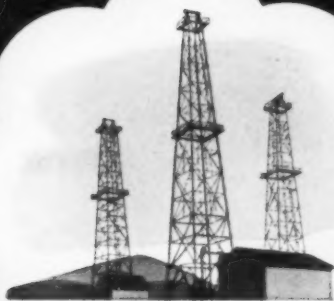
LOGGING



TRANSPORTATION



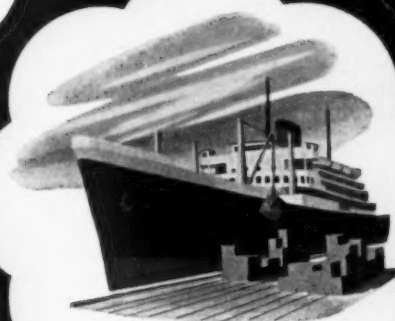
MINING



PETROLEUM



MANUFACTURING




MARINE



CONSTRUCTION

EMERGIE

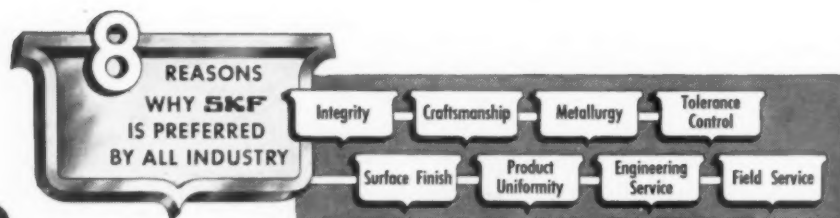


When you need replacement pillow blocks—or pillow blocks for equipment you are building for your own use—your local **SKF** Bearing Specialist is the man to call on. Why? Because the **SKF** line is the most complete line of pillow blocks.

Because **SKF** designs and manufactures *both* bearings and housings—every assembly is engineered and manufactured as a complete unit, with one responsibility for both.

And because your **SKF** Bearing Specialist will always co-operate to give you authoritative advice, fast local service, conscientious follow-up. For bearings, too, he is the man to call. He can tell you why **SKF** is preferred by all industry. For the right bearing in the right place, call your local **SKF** Distributor.

SKF INDUSTRIES, INC., PHILADELPHIA 32, PA.,
the Pioneers of the Deep Groove Ball Bearing—Spherical Roller Bearing—Self-Aligning Ball Bearing. 7108



NCY or routine

**depend on your SKF
distributor • for ball
or roller bearings or
pillow blocks • he has
one for every place
• one place to get
them all**

SKF
BALL AND ROLLER BEARINGS



What is KEX National Service?

It is a superior Industrial Wiping Towel Rental Service that thousands of leading industrial plants are using week after week from their local distributors. A service that they have learned from experience offers concrete dollar savings.

How will KEX be of benefit to me?

KEX Wiping Towel Rental Service offers you:

- ✓ **Greater Safety** for employees . . . for machines.
- ✓ **Economical Wiping**—more wipes per towel.
- ✓ **Wiping Towels** that are hygienically clean.
- ✓ **Wiping Towels** that *absorb* instead of spread dirt.
- ✓ **Improved Housekeeping**—simplified, space-saving storage.
- ✓ **Greater Efficiency**—every square inch usable.
- ✓ **Wipers** are uniform in size and texture.
- ✓ **Greater Handling Convenience**—towels are inspected, folded and counted.
- ✓ **Regular Scheduled Delivery and Pick-Up.**
- ✓ **A Service** that eliminates re-ordering "headaches."

How much does KEX National Service Cost?



★ **No investment is necessary.** You just pay a low rental charge per towel. Your local KEX DISTRIBUTOR will study your requirements and will service you in such a way that your wiping material costs will be greatly reduced. Look for him in your classified telephone book. Or write KEX NATIONAL SERVICE, 295 Fifth Avenue, New York 16, N. Y.

"KEX" NATIONAL SERVICE
REG. U.S. PAT. OFF.

GENERAL ELECTRIC UNVEILS "MORE POWER TO AMERICA SPECIAL" EXHIBIT TRAIN

The General Electric Company unveiled its More Power to America Special, the biggest electrical display kit ever built, in Grand Central Terminal, New York City, April 24.

Almost a quarter-mile long, the 10-car exhibit train represents the first attempt to display, in one series of related exhibits, the complete range of products for the production, distribution, and industrial utilization of electric power.



H. V. Erben, vice president and general manager of the apparatus department, and J. S. Smith, manager of the department's advertising and sales promotion division, operate a model of a

huge 230-kv impulse breaker

Believed to be unique in industrial marketing history, the silver streamliner is filled with exhibits of more than 2,000 of the most modern electric products, systems, and techniques.

The "Special", launched on the rails by the company's Apparatus Department, was in New York on the first lap of a nationwide tour. It will visit approximately 150 key industrial centers during 1950 and 1951.



Mr. Erben and Mr. Smith examine a display of fractional motors

At each stop on its tour, the exhibit train will be inspected by invited representatives of electric utilities, the manufacturing and transportation industries, the armed services, the federal government, and municipalities.

The train will not be open to the general public, according to G-E spokesmen. They explained that the exhibits aboard the train have been designed specifically to interest those who produce electric power and those who put it to work in industry and the community.

(Please turn to page 320)



**You've sure come to the
right place, Mister! . . .**

FOR a carload of brass sheet! A quantity of copper rivets! A mile of fine, gleaming brass wire!

Yes, Mister, see Chase, the Nation's Headquarters for Brass and Copper.

A nationwide network of 23 Chase warehouses makes it simple for you to place orders. Small quantities may be filled from warehouse stock. Larger orders are passed on to a large Chase mill.

And — *assistance* in planning the use of copper and brass . . . *advice* on new alloys . . . are *always* yours for the asking. Just get in touch with your nearest Chase warehouse. We'll be glad to help. Chase Brass & Copper Co., Incorporated, Waterbury 20, Conn. A Subsidiary of Kennecott Copper Corporation.

Chase  *the Nation's Headquarters for*
BRASS & COPPER
WATERBURY 20 CONNECTICUT SUBSIDIARY OF KENNECOTT COPPER CORPORATION

THIS IS THE CHASE NETWORK . . . handiest way to buy brass

ALBANY! ATLANTA BALTIMORE BOSTON CHICAGO CINCINNATI CLEVELAND DALLAS DENVER! DETROIT HOUSTON! INDIANAPOLIS KANSAS CITY, MO. LOS ANGELES MILWAUKEE
MINNEAPOLIS NEWARK NEW ORLEANS NEW YORK PHILADELPHIA PITTSBURGH PROVIDENCE ROCHESTER! ST. LOUIS SAN FRANCISCO SEATTLE WATERBURY (Sales Office Only)

CAMPBELL CHAIN

takes the strain . . .

The job that calls for chain deserves only the best.

Campbell rigidly inspects every link in every chain . . . to make sure your order measures up to the high standards of strength and quality traditional with Campbell for almost half a century.

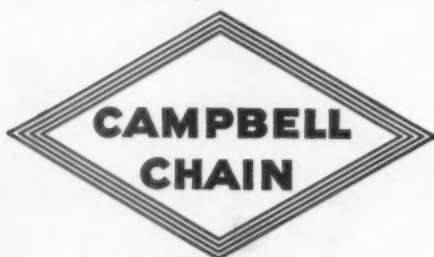
Campbell Chain is available through leading industrial distributors. In addition, Campbell field representatives are ready to help you and your engineers with original equipment or special chain requirements.

For dependable chain—depend on Campbell.

Write for your copy of the latest
Campbell Chain Catalog.

CAMPBELL CHAIN *Company*

York, Penna.



For Every Need:

INDUSTRIAL • MARINE • AUTOMOTIVE • FARM
SPECIAL PURPOSES



(Continued from page 318)

Exhibits in the "Special" are grouped in 11 major sections: Power Generation, Transmission, and Distribution; Drives and Controls, Materials Handling, Welding, Industrial Heating, Renewal Parts, Industrial Lighting, Components for Industry, Measurements, Civic Improvement, and National Security.

Arrayed throughout the train are displays covering the complete range of apparatus for industry. Individual exhibits—many of them operating—cover such equipment as turbines, substations, transmission equipment, motors of all sizes and ratings, complex drive systems, industrial and street lighting fixtures, precise instruments, welding and heating equipment, diesel-electric switchers, controls, urban transit and railroad equipment.



E. A. Green, control divisions sales manager, operates one of the control exhibits

Still others relate to atomic power, weather research, guided rockets, aircraft jet engines, ultrasonics, ship propulsion equipment, fire control systems, and "snow-making" techniques.

♦ ♦ ♦

NEW RESIN USED AS CORE SAND BINDER GIVES BETTER CASTINGS AND LOWER COSTS

Development of a synthetic thermosetting resin especially designed for use as a core sand binder has been announced by Monsanto Chemical Company, Springfield, Mass.

J. R. Turnbull, general sales manager of Monsanto's Plastics Division, said in announcing the new product that it is an efficient, rapid-curing phenolic of high bond strength and low cost devised to meet the exacting requirements of the foundry industry.

"Superior castings as well as lower core sand costs are possible when Resinox 4846 is substituted for more conventional core binding," Mr. Turnbull said. "Better surface finish, cleaner castings, greater detail, less tendency toward veining, scabbing, spalling, blows and hot tears have been demonstrated.

"Savings may be anticipated, using Resinox 4846, from higher sand to resin ratios, reduced fuel consumption during baking, increased core making capacity and less breakage of stored cores," he added. "Foundry use of this resin has resulted in increased storage stability of the cores."

(Please turn to page 324)

NEW!

FAFNIR Spherical Roller Bearing Pillow Blocks



With the addition of these new spherical roller bearing pillow blocks, Fafnir offers anti-friction power transmission units for every load, speed and operating condition. Incorporating the well-known Torrington spherical roller bearings, these Fafnir units combine advanced designing, rugged simplicity, ease of maintenance and long life expectancy. Available from your nearby franchised Fafnir distributor. Write for literature. The Fafnir Bearing Company, New Britain, Conn.

Two-piece split design housing

High-grade stress-relieved cast iron
Oil or grease lubrication
Held or free bearing mountings
Adaptable for oil or water cooling
Equipped with either felt seal or frictionless triple labyrinth seals
Housings with closed ends when required

Torrington Self-Aligning Spherical Roller Bearings

Completely self-aligning to compensate for any practical angular displacement of shaft. High radial and two-direction thrust capacity assure combined load-carrying ability required for heavy-duty applications.

Two types — full range of sizes

Adapter type mounting for shaft diameters from $1\frac{7}{16}$ " to $7\frac{15}{16}$ ".
Straight bore mounting for shaft diameters from $1\frac{15}{16}$ " to $8\frac{3}{8}$ ".

FAFNIR

BALL AND ROLLER BEARING
PILLOW BLOCKS



It's a time-saver for everyone in your office!



"SCOTCH" BRAND Cellophane TAPE is tops with me for all kinds of jobs like . .



MENDING office records, file cards, maps, correspondence



MASKING out unwanted parts of duplicator copy



LABELING file cabinet drawers, folders and section dividers



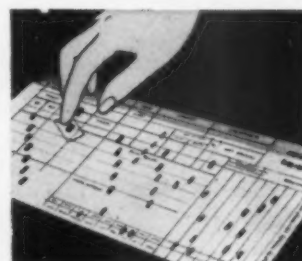
IT SIMPLIFIES lots of time-consuming jobs for me . .



ATTACHING riders and notices to all kinds of documents



MENDING torn checks, vouchers, and currency invisibly



CORRECTING mistakes and revising tabulating cards



VERY HANDY for little odd chores that clutter up a day . .



PUTTING UP office notices, announcements, instructions



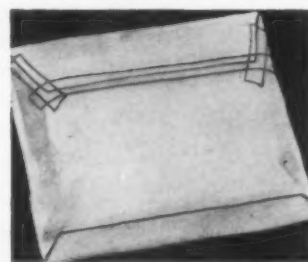
ATTACHING reminder tags and memos to letters and files



DOUBLE-SEALING important envelopes, confidential files



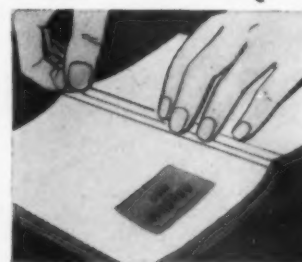
"SCOTCH" BRAND Cellophane TAPE helps me in . .



SEALING boxes, packages, bulky envelopes for mailing



LABELING supply shelves, rubber stamps, storage boxes



REINFORCING binders, notebooks, file folders, indexes



HEAVY DUTY DISPENSER is a favorite for mail rooms and file departments. Refillable with big, economical 2592-inch rolls. \$2.50 without tape.



DESK DISPENSER has soft rubber feet, lets you flick off any length of tape with one hand. Takes 1296- or 792-inch roll. \$1.69 without tape.



PLASTIC HAND DISPENSERS and Utility Dispensers keep tape handy at all times, ready to do a thousand and one jobs around the office.



IMPORTANT: There's more than one brand of cellophane tape —for quality always insist on the "SCOTCH" brand, in the bright plaid container.

Made in U.S.A. by MINNESOTA MINING & MFG. CO., St. Paul 6, Minn., also makers of other "Scotch" Brand Pressure-sensitive Tapes, "Scotch" Sound Recording Tape, "Underseal" Rubberized Coating, "Scotchlite" Reflective Sheeting, "Safety-Walk" Non-Slip Surfacing, "3M" Abrasives, "3M" Adhesives. General Export: DUREX ABRASIVES CORP., New Rochelle, N. Y. • In Canada: CANADIAN DUREX ABRASIVES LTD., Brantford, Ontario.

Specify Thermoid
Versicon Hose
for all* your needs

Oil Hose
Welding Hose
Air Hose
Water Hose
Spray Hose
Fuel Oil Hose
Gasoline Hose
Chemical Hose

← This
or This?
↓
Versicon Hose

Thermoid Hose Boosts Your Profits!

Management looks to you, Mr. P. A., to boost profits by cutting costs. Here's one way to do it! Specify Thermoid Versicon—the *one* hose that does the job of many special-purpose hose. Built to last longer . . . to save time on the job . . . to reduce your present hose inventories—Versicon handles virtually every gas and liquid.

Thermoid makes a *complete* line of top-quality molded and wrapped hose for every service—sand blast hose, steam hose, high pressure hose, suction hose and countless others—all built for highest operating efficiency and lowest operating costs.

Ask your nearest Thermoid Distributor or write Thermoid for latest data sheet 3765A.

*Versicon may be used for all air-operated tools, oxygen and acetylene lines. It will handle air, water, gasoline, oil, most insecticides and chemicals, carbonic and other dilute acids, and almost all fluids.

For durability and flexibility, Versicon is made with synthetic oil-proof tube, oil-resistant cover and high tensile rayon cord. Available from $\frac{3}{16}$ " to $2\frac{1}{2}$ " in lengths from 50' to 500' depending on size.

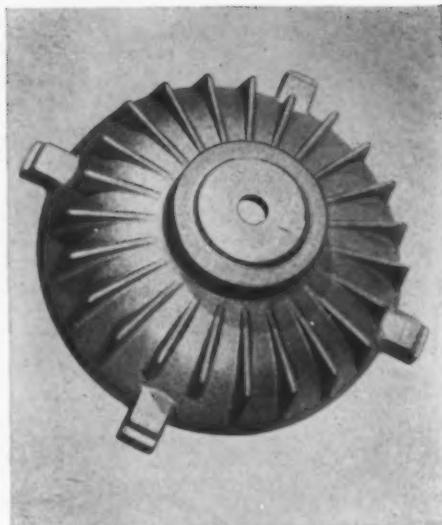
Purchase for Profit—*Specify* Thermoid

Thermoid Quality Products: Transmission Belting • F.H.P. and Multiple V-Belts • Conveyor Belting • Elevator Belting • Wrapped and Molded Hose • Molded Products • Industrial Brake Linings and Friction Materials.

Thermoid
Company

Main Offices and Factory • Trenton, N. J., U. S. A.
Western Offices and Factory • Nephi, Utah, U. S. A.
Industrial Rubber Products • Friction Materials • Oil Field Products

Can
You
Name
it?*



**IT'S THE
GRAY IRON
PRODUCTION CASTING
OF THE MONTH**



**ANOTHER EXAMPLE
OF PRODUCTION CASTINGS**

that our modern and completely staffed and equipped Foundry turns out regularly for satisfied customers. They know that it saves them time, money and production headaches to always bring their casting problems to

SUPERIOR FOUNDRY INC.

3542 EAST 71st STREET • CLEVELAND 5, OHIO

VULCAN 3-8000

Member of the Gray Iron Research Institute

*Explosion-proof electric motor end bell cast in Superior Iron. This finned casting dissipates heat, quickly dampens vibrations. It is Superior cast close to pattern tolerance to eliminate a minimum of machine work, add efficiency to the motor it houses.

(Continued from page 320)

Gasing of phenolic resin bonded cores is much less than that of conventionally bonded cores, Mr. Turnbull pointed out. "In addition," he said, "gas products of resin-cereal decomposition during casting are readily burned without formation of obnoxious odors or lacrimatory smoke."

A wide range of core properties obtainable by varying core composition were cited by the Monsanto official as a result of the use of the new product. Among them were high tensile strength, high baked permeability, resistance to abrasion, rapid baking without green center, excellent detail and dimensional stability and unique collapsibility and shake-out.

1 1 1

**GLASSINE SAMPLE BOOK
GIVES PACKAGING DATA**

Riegel Paper Corporation, 342 Madison Ave., New York 17, has issued a new 8-page folder containing samples of 21 glassine, greaseproof, waxed, coated and foil-laminated packaging papers. Of particular interest is a chart that assists in the selection of the proper paper. The chart briefly describes the principal characteristics of the papers that are sampled, and tabulates a few of their general uses.

1 1 1

**ELECTRONICS DICTIONARY
COVERS WIDE RANGE OF TERMS**

A "Dictionary of Electronic Terms", containing over 2,500 terms used in industrial, radio and television electronics has been issued by Allied Radio Corporation, 833 W. Jackson Blvd., Chicago 7, Ill. Copies are available from the company at 25¢ each.

Definitions used in the dictionary cover mostly modern techniques and equipment, but range from many words no longer in general use, retained for historic reasons, to the new language of color television and the electronics of nuclear physics. Over 125 illustrations and diagrams of components, equipment, and electronic circuits are included, as well as an appendix containing useful radio data.

1 1 1

**COMBINED SOCIAL SECURITY
AND WITHHOLDING TAX CHART**

A combined social security and withholding tax chart that is said to cut by 46% the time spent on payroll tax deductions is offered by Delbridge Calculating Systems, Inc., 2502-10 Sutton Ave., St. Louis 17, Mo. Delbridge says the Commissioner of Internal Revenue authorized the use of one combined amount, provided acceptable segregation of the two taxes is made by the employer upon filing reports and making remittances. By using the chart the payroll accountant can instantly read off one federal tax deduction and enter only one combined amount. Volumes available for weekly, bi-weekly and semimonthly payrolls at \$7.50; for monthly payroll periods at \$10.00.



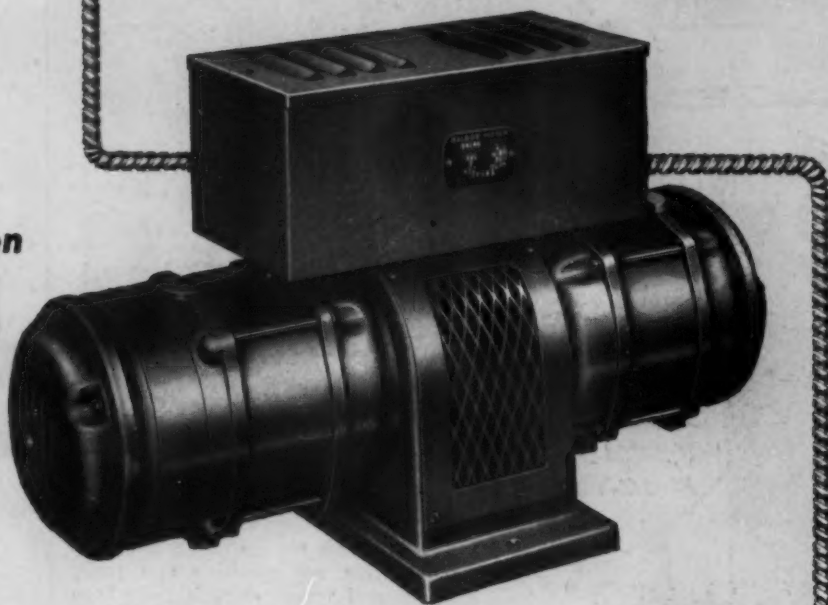
CONTROL UNIT
—place it anywhere

Here is the **BALDOR** *Simplified* **ADJUSTABLE SPEED** **MOTOR System**

for innumerable applications

from 0
to 2400 r. p. m.,
and selected
speeds in-between

dynamic braking
and
instant reversing



WIDER RANGE OF SPEEDS — from 0 to 2400 r. p. m., and intermediate speeds, quickly and positively. (16 steps forward; 16 steps reverse.)

FULL TORQUE—constant speed at each speed setting.

RAPID, SMOOTH SPEED CHANGE—even from full forward to full reverse. One simple control pro-

vides smooth speed changes and dynamic braking.

SEPARATE UNITS permit convenient, economical application and installation, either near-by or remote operation.

SIZES: 3/4 hp., thru 1 1/2 hp., Single Phase
3/4 hp., thru 3 hp., Three Phase

Baldor Motors are sold and serviced
NATIONALLY in over 300 trade centers
BALDOR ELECTRIC CO., ST. LOUIS 10, MO.
Motor Specialists for 30 years

Another
Baldor
MOTOR DEVELOPMENT

ASK for
complete,
detailed
data.



The Baldor Streamcooled Motor is **TOTALLY ENCLOSED**, cooled by externally-mounted fan. It can't clog.



WATER COOLERS

make 'em love
that job

Pep
and zip
with every
sip



Finger-
prints
don't show
—stays
spotless

It's the heart
that counts—G.E.
sealed units
warranted 5 yrs.—
save money

TIP-TOE-
TAP

G.E. makes
sanitary
china top

Runs
all day
on a few
pennies



Water Coolers

PRESSURE AND BOTTLE TYPES

GENERAL ELECTRIC

free

Mail coupon with letterhead for free
beverage thermometer. Check the
temperature of your drinking water.
General Electric Co., Sec. P-5, Air
Conditioning Dept., Bloomfield, N. J.

NAME

ADDRESS

CITY

STATE

NEW CUTTER AND TOOL GRINDING MACHINE

New cutter and tool grinding machine known as the 10N, with Universal equipment is announced by the Brown & Sharpe Manufacturing Co., Providence, R. I. The machine is designed specifically for the rapid and accurate sharpening of plain milling cutters (straight and helical), formed cutters, straddle and face mills, angular cutters of any angle, side milling cutters, end mills, straight or tapered reamers, saws, light cylindrical grinding, internal grinding, surface grinding, etc. The fixed height of the



Ease and efficiency of operation make
the new Cutter-Tool Grinder a money-
saver

machine gives easy visibility of wheel and work from the operating positions. The controls are sensitive and easily operated, and are all right at hand from the front, right-rear or left-rear of the table. These features promote a speed and accuracy of output which appeals to operator and manufacturer alike. Simplicity of design and the use of high quality materials keep maintenance cost at a minimum, and combine with the ease and efficiency of operation to make the machine a money saver on either toolroom or production work. Bulletin, 22 pages, freely illustrated, describes the new machine in detail.

♦ ♦ ♦

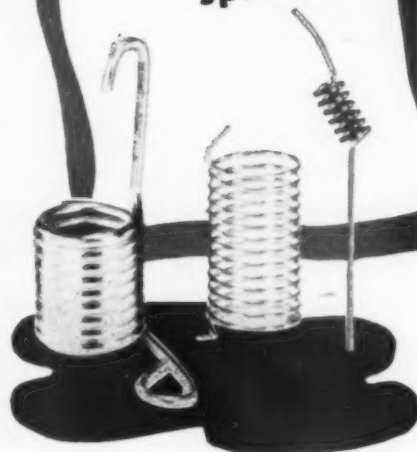
OFFER POLYKEN ELECTRICAL TAPE THROUGH DISTRIBUTORS

Polyken No. 163 electrical tape, recently announced, is now available nationwide through electrical distributors, in addition to selected wholesalers, according to Polyken Industrial Tape, 222 W. Adams St., Chicago 6, Ill.

The manufacturer states that No. 163 exceeds ASTM friction tape specifications eight ways: higher dielectric strength, better moisture barrier, less bulk with equal strength, sticks quicker, stays cleaner, unwinds easily, doesn't fray and sticks firmly to any clean surface. Because it is not a friction tape, its clean black cloth backing is non-sticky. Descriptive folder, "Test It Yourself", is available from the company.

Accurate "know how"

saved many
dollars
for the users
of these
springs



SPRINGMAKING "know how"

—and, of course, modern manufacturing facilities—can mean a lot to spring users. The three springs illustrated above are good examples of how Accurate can slash spring costs with modern methods. Where previously multiple operations and intensive inspection was required in the manufacture of these springs, Accurate was able to develop means of producing each in a single operation so accurately that inspection by the users could be eliminated or substantially reduced. And the unit price of each is a fraction of a cent! Since tens of millions of each of these are in daily use the overall savings are very sizable.

We'd like to show those of you who are users of large quantities of springs how we can cut your costs. Write or call today.



A dependable source of supply!

ACCURATE SPRING MFG. CO.

3825 W. LAKE ST. • CHICAGO 24, ILL.

Springs, Wire Forms, Flampings



You profit by CLEVELAND'S policy of Specialization

Keeping "expert" in producing only Cap Screws, Set Screws and Milled Studs—plus "specials" made to customers' designs—is assurance that Cleveland's policy of Specialization brings you *Top Quality* Fasteners. We concentrate on making a *few* items *well*. . . It's important, too, that by specializing we can make the much abused word "Service" really *mean* something. . . It pays you to specify and buy Cleveland *Top Quality* Fasteners.

THE CLEVELAND CAP SCREW COMPANY

2917 East 79th Street, Cleveland 4, Ohio
Warehouses: Chicago, Philadelphia, New York

CLEVELAND
Top Quality
FASTENERS

ORIGINATORS OF THE
KAUFMAN **DOUBLE
EXTRUSION** PROCESS

Specialists for more than 30 years in
CAP SCREWS, SET SCREWS, MILLED STUDS
Ask your jobber for Cleveland Fasteners

Dear P. A.—

*You're coming
to Cleveland,
we hope!*

This is our "welcome" in advance . . . and a sincere wish that you will have a profitable, constructive and most enjoyable visit . . .

while attending the N. A. P. A. Convention, June 11 to 14, in Cleveland.

We'll be looking for you at our booth, and we hope you'll have time to visit our factory.

Yours very truly,

Howard R. Swartz

General Sales
Manager

The Cleveland Cap
Screw Company



BOOTH 67
Public Hall



PERSONALITIES

in the NEWS

John J. Summersby has been named Vice President in Charge of Purchases for the Worthington Pump and Machinery



John J. Summersby

Corporation, Harrison, N. J. Frederic W. Thomas has become General Manager of Purchases; and Carleton Reynell, General Representative, Sales and Purchasing Departments.

Mr. Summersby joined the Cincinnati Works of Worthington in 1916 as a student engineer and has been with the corporation continuously, except when serving in World War I. He served as a salesman in the St. Paul office, then district sales manager, and in 1929 was



Frederic W. Thomas

appointed manager of Holyoke Works sales. Made assistant Vice President in 1934, he became Vice President in Charge of Sales in July, 1949. A graduate of Washington University with a B.S. degree, Mr. Summersby later received an M.E. degree from the same institution.

Mr. Thomas joined Worthington in 1936 as Assistant General Manager of Purchases, after serving as General Sales Manager of mechanical power transmission equipment, John Waldron Corporation. He is a graduate of Stevens Institute of Technology.

Mr. Reynell, formerly General Manager of Purchases and Traffic, joined Worthington in 1930 as General Purchasing Agent and became Manager of the Purchases & Traffic Department in 1941.

George Raiselis has been appointed Director of Purchases of the Bassick Company, Bridgeport, Conn.



George Raiselis

Mr. Raiselis' appointment comes at the completion of 26 years' service with the company. He started work for the company at the M. B. Schenck Division in Meriden, Conn., and has been employed in various capacities, spending years in both the shipping and production departments. In 1940 he was made Assistant Purchasing Agent and served in that position until 1949 when he was made Acting Purchasing Agent.

Roland M. Brennan, Purchasing Officer, District of Columbia, Washington, D. C., has been appointed by the Board of Commissioners as a member of a committee to handle such emergency fuel shortages as may develop in the future. Other members of the board include city officials and leading businessmen.

Emerson G. Morse has been named Director of Purchases of Lever Brothers Company, New York, N. Y. With the



Emerson G. Morse

company more than 27 years, Mr. Morse succeeds James F. Reeves, who retired last February because of ill health. Mr. Morse was for 18 years Purchasing Agent for Lever's plant at Hammond, Ind., before transferring to the buying office in Chicago in May, 1948. His headquarters henceforth will be at the Lever executive offices, 505 Park Avenue, New York, N. Y.

Frederick E. Wood has been named to the position of Steel Buyer for Inland



Frederick E. Wood

Steel Products Co., Milwaukee, Wis. Lester Bufton has been promoted to Buyer of Supplies and Resale Items.

Mr. Wood served thirteen years with
(Please turn to page 330)



ONE IMPROVEMENT SUGGESTS ANOTHER

Bearing Manufacturer Wants Single Cutting Oil; Gets One Which Also Serves As a Lubricant

The working out of one idea frequently suggests an even better one. Take the case of a ball bearing manufacturer who requested Sun's help in developing a single cutting oil for all cutting operations.

Various oils he had blended did not give entirely satisfactory results; they tended to sludge and clog the machines. On difficult jobs, operators found it necessary to "soup-up" the blends, greatly increasing cutting oil costs. Production results were not uniform. Furthermore, lubricating oil leaked into the cutting fluids, reducing their efficiency and shortening tool life.

The Sun men who studied the problem agreed that a single cutting oil would be desirable. But they saw an opportunity for further improvement if they could provide

an oil which would also serve as a lubricant. After extensive development work in Sun's laboratories and the customer's plants, they succeeded in producing such a dual-purpose oil.

Called Sunicut 812W, it was first introduced in a single department of one plant, is now in service throughout the company's four plants. Tool life has increased 15 per cent on the average—as much as 100 per cent in some cases. Machines previously sludged are now so clean that the original finish shows. Annual lubrication saving: about \$3,000. Inventories have been reduced, blending eliminated, and storage simplified.

SUN OIL COMPANY • Philadelphia 3, Pa.

In Canada: Sun Oil Company, Ltd.,
Toronto and Montreal

VIEWPOINT

An outside viewpoint on your inside operations can be of great value. It can be of *greatest* value if it is the viewpoint of a technical man with wide experience, a man who knows how to walk through a plant with his eyes open, perhaps asking a question here and there. From such a man you can learn of trouble before it starts. And you can often get suggestions concerning more economical ways of using cutting oils, lubricants, or process aids.

Every Sun sales representative has the training and breadth of experience to give you such a valuable outside viewpoint. Why not ask a Sun man in today?

SUN PETROLEUM PRODUCTS



Since 1887

MILWAUKEE
WROT WASHERS

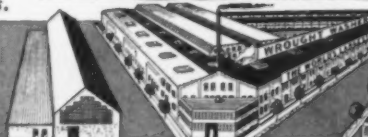
Better
WASHERS
... Competitively Priced

Large volume production, the most advanced methods and facilities, plus more than 60 years of continuous experience in the manufacture of Washers, are factors that enable us to offer you top quality washers and stampings at competitive costs. Over 22,000 sets of dies for making Washers of every type (Standard and Special), from every type of material, for every purpose, in any finish. STAMPINGS of all descriptions; Blanking, Forming, Drawing. *Submit your blue-prints and quantity requirements for estimates.*

**WROUGHT WASHER
MANUFACTURING CO.**

The World's Largest Producer of Washers

2113 S. BAY ST., MILWAUKEE 7, WIS.



(Continued from page 328)

the parent organization, Inland Steel Company, Indiana Harbor Works. He held various positions there in the finance, cost accounting, purchasing and industrial relations divisions. Mr. Bufton has been with the firm's purchasing department since his graduation from Carroll College in 1936.

Austin E. Hustler, formerly Assistant Purchasing Agent, has been appointed Purchasing Agent of the Wall Wire Products Company, Plymouth, Mich.

Morris Morton has been named Purchasing Agent of the Globe Hoist Co., Des Moines, Iowa. He succeeds C. D. McRae who has moved to the sales department of Globe Machinery & Supply Company.

Harold H. Frair, Purchasing Agent of the Glens Falls Insurance Company, Glens Falls, N. Y., was recently elected president of the Rotary Club of that city. Mr. Frair is a past president and former national director of the Purchasing Agents Association of Eastern New York.

Raymond H. Moyer has succeeded Jacob W. Meeker as Purchasing Agent of the New York Shipbuilding Corp., Camden, N. J. Mr. Meeker retired recently after 46 years service with the company. Mr. Moyer joined the company in 1900, and entered the purchasing department in 1911.

Frank M. O'Brien has been appointed Purchasing Agent for Frederick and Nelson, Seattle, Wash. He succeeds Lillian Dobbs, resigned.

Dan P. Miller has been named Purchasing Agent for Textile, Inc., Dallas, Tex. He replaces Roy C. Barber who has joined the company's national sales department. Mr. Miller formerly was Purchasing Agent for Universal Corp., and prior to that he was in charge of subcontracting at Consolidate Vultee in Fort Worth.

Ransom B. DeLisle has been appointed Purchasing Agent of the Pittsburgh Metallurgical Co., Niagara Falls, N. Y.

Leslie Brode has been named plant Purchasing Agent at the Amcelle, Md. plant of the Celanese Corporation. He replaces B. J. Lyons, who has been transferred to the Celco, Va. plant.

David Watson has been named County Purchasing Agent and Statistician of Santa Barbara County, with headquarters in Santa Barbara, Calif.

Earl Udall has been appointed Assistant City Purchasing Agent of Phoenix, Ariz.

Oscar W. Holcombe, district Purchasing Agent for Aluminum Company of America has been elected president of the 25 Year Club at the company's Edgewater, N. J. plant.

(Please turn to page 332)

They look alike But!...
THERE IS A DIFFERENCE

Like eggs — gummed tapes may look alike in the roll but there can be a whale of a difference. In eggs its taste — in tape its performance. **Safetex** selected strong, tough base stock, special quick acting glue, cracked glue surface, herringbone tread — all guarantee the peak of performance. Besides the patented pull tab opener in every roll saves time and tape.

CENTRAL PAPER CO., MENASHA, WIS.

USE GUMMED TAPE! No other closure does so much for so little.

**SAFETEX
GUMMED TAPE**

As thin as a hair or as thick as your thumb

..... FROM .005" TO 1/2" DIAMETER TO BE EXACT



Here's Stainless Wire in any size you need

... in any quantity ... and for any purpose

TO MEET practically any requirement for Stainless Steel wire, the American Steel & Wire Company has recently put into operation at Waukegan, Illinois, one of the country's largest, most modern mills *exclusively* devoted to the production of Stainless Steel wire.

Equipped with the latest and finest in wire making equipment, this mill can produce 500 tons of high quality Stainless wire monthly. In sizes ranging from 1/2" diameter to as fine as .005". In pickled, metallic coated, oil drawn, soap drawn, diamond drawn or bright annealed finish.

Special sizes of flat wire and special shapes can also be furnished.

If you are manufacturing any product that is made in whole or in part of wire and that would be improved by the superior corrosion resistance, greater strength, freedom from stain and rusting, lasting beauty and better sanitary properties that Stainless Steel insures, give us the opportunity to go over your specifications and to quote you prices and delivery. You'll save yourself time and money by coming direct to us—*wire makers to the Nation for more than 100 years.*

AMERICAN STEEL & WIRE COMPANY, CLEVELAND • CARNEGIE-ILLINOIS STEEL CORPORATION, PITTSBURGH
COLUMBIA STEEL COMPANY, SAN FRANCISCO • NATIONAL TUBE COMPANY, PITTSBURGH • TENNESSEE COAL, IRON & RAILROAD COMPANY, BIRMINGHAM
UNITED STATES STEEL SUPPLY COMPANY, WAREHOUSE DISTRIBUTORS, COAST-TO-COAST • UNITED STATES STEEL EXPORT COMPANY, NEW YORK



U·S·S STAINLESS STEEL

SHEETS • STRIP • PLATES • BARS • BILLETS • PIPE • TUBES • WIRE • SPECIAL SECTIONS

UNITED STATES STEEL

6-317

IT'S TRIPLEX

for toughness...and economy

**especially in
tonnage lots**

SCREWS



CAP Sizes to 1" x 8"
U.S.S. or S.A.E. Hex, flat,
button or fillister heads.



SET Sizes to 3/4" x 4" U.S.S.
threads. Square heads, cup and
oval points.



MACHINE
Sizes to 1" x 60". Square,
hex or countersunk heads.

LAG
Sizes to 3/4" x 20". Stand-
ard square heads, gimlet
points.

STEP
Sizes to 1/2" to 6". Standard
heads, finished points.

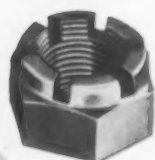
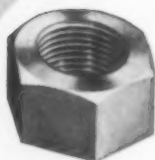
STOVE
Sizes to 1/2" x 6". Round, flat
or oven heads.

CARRIAGE
Sizes to 1" x 60". Stand-
ard round or special heads.

PLOW
Sizes to 3/4" x 6".
American and
Manufacturers
Standard
heads.

SEMI-FINISHED
American Standard
heavy and light, full and
jam sizes to 1 1/4". Milled
from the bar.

CASTELLATED
American Standard
light castle hexagon.
Sizes to 1 1/4".



NUTS

BOLTS

Buying threaded fasteners
in tonnage lots can often
lead to considerable sav-
ings—especially if you
order from **TRIPLEX**.
You get top quality
and unexcelled hold-
ing power from
TRIPLEX... with-
out paying prem-
ium prices.



When you're ready to order
threaded fasteners—write
or wire for **TRIPLEX** prices.

The TRIPLEX SCREW Co.

5331 Grant Ave. Cleveland 5, Ohio

TRIPLEX *for TOUGHNESS*

CAP AND SET SCREWS • BOLTS, NUTS AND RIVETS

(Continued from page 330)

John L. Carmichael has been appointed General Purchasing Agent at Delco Appliance Division, General Motors Corporation, Rochester, N. Y. He has been with the firm since 1936, and became traffic manager in 1946, a position he will retain.

Edward Grant has been appointed City Purchasing Agent of Casper, Wyo.

W. P. E. Ainsworth, General Purchasing Agent and Production Manager of Combustion Engineering-Superheater, Inc., New York, N. Y. for the past 10 years has been elected vice president. He joined Combustion Engineering in 1921 as service engineer and in 1929 was appointed assistant production manager with supervision of the purchasing activities in the New York office. Mr. Ainsworth is a vice-president of the Purchasing Agents Association of New York.

G. W. Howard Ahl, president of the Purchasing Agents Association of New York has been elected a member of the Board of Education, District 12, Nassau County, L. I., N. Y.

Donald H. Lyons, national director of the Purchasing Agents Association of New York, was one of the speakers at the One-Day Management-Sales-Cooperation Conference presented by the Sales Executive Club of New York at the Hotel Roosevelt on May 9. His subject was "Building Sales Through the Purchasing Department."

Raymond P. Kane, formerly division Purchasing Agent of United States Printing and Lithographing Co. at Garden City, L. I., has been appointed Director of Purchasing for the company, with headquarters in Cincinnati, O.

AMONG THE COMPANIES YOU BUY FROM

Cleveland, O.—Heppenstall Co. The company's district sales office here has been moved to the Terminal Tower Building.

New York, N. Y.—Sylvania Electric Products, Inc. New headquarters has been established here at 1740 Broadway.

New York, N. Y.—United States Rubber Company. J. A. Herring has been appointed technical sales representative for Marvinol vinyl resins in the New York area.

New York, N. Y.—Alan Wood Steel Company. W. E. Bossert has been appointed New York district sales manager, succeeding W. H. Dickson, who has retired after 41 years continuous service with the company.

(Please turn to page 334)

Electrical distribution IS THE **LIFELINE**

OF YOUR PLANT

Select it with care!

Selecting the *right* distribution system gives your plant greater efficiency . . . better layout . . . lower operating costs. NATIONAL ELECTRIC can help you specify the electrical system that fits *your* needs the best, because NE makes them *all*!

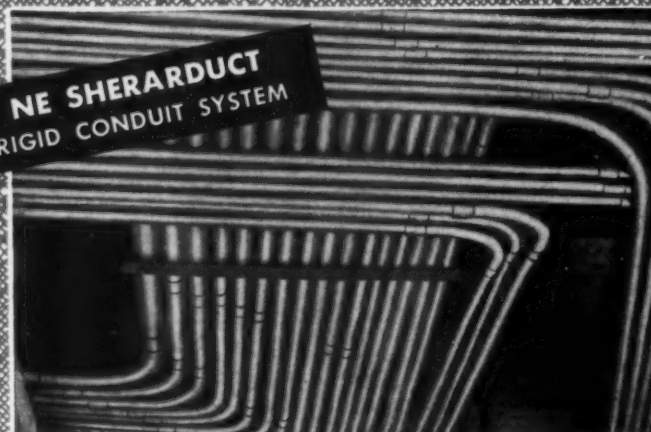
- INDUSTRIAL BUSWAY SYSTEMS
- RIGID AND FLEXIBLE CONDUIT SYSTEMS
- METALLIC-SHEATHED WIRING SYSTEMS
- NON-METALLIC-SHEATHED WIRING SYSTEMS
- SURFACE METAL RACEWAY SYSTEMS
- INSULATED WIRES AND CABLE of all types including: Building wires and cables • Power cables • Appliance and equipment wires and cables • High-temperature wires and cables • Signal and control circuit wires and cables • Special wire and cables made to your own specifications.

National Electric
PRODUCTS CORPORATION

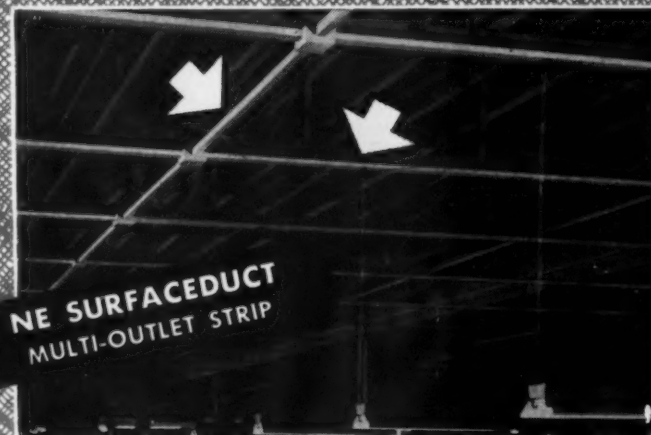
NE BUSWAYS
ELECTRICAL BUSBAR SYSTEM



NE SHERARDUCT
RIGID CONDUIT SYSTEM

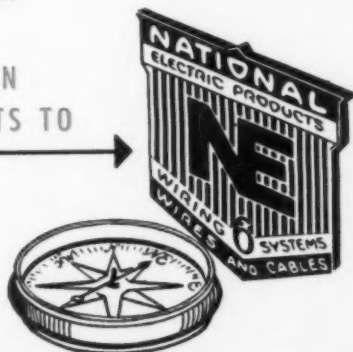


NE SURFACEDUCT
MULTI-OUTLET STRIP



Let our Field Representatives help you specify the *right* electrical distribution system to fit *your* requirements.

EVERYTHING IN
WIRING POINTS TO



NATIONAL ELECTRIC PRODUCTS CORPORATION
1351 CHAMBER OF COMMERCE BUILDING, PITTSBURGH 19, PA.

Please send me your literature on:

- ☐ Industrial electrical busbar systems
- ☐ Rigid conduit systems
- ☐ Multi-outlet strip; Surface Metal Raceways

Name

Company

Address

YOU CAN SAVE
fuel-time-money
with this MODERN furnace cleaner



SOOT is a fuel robber. As you know, even a thin deposit prevents the heat transfer that gives you **FULL VALUE** for the fuel you burn. That's why Heating Engineers say "once-a-week" vacuum cleaning is none too often for **MAXIMUM** heating efficiency.

To do this job easily, thoroughly, economically—General Electric has developed a *special*, heavy-duty, high-vacuum Furnace and Boiler Cleaner.

This modern, moderately priced machine has the **POWER** to do a *real* cleaning job (1 full h.p.—43" water lift) yet is so easy to handle and light in weight (only 51 lbs.) the job goes easily . . . quickly. Comes with special furnace-cleaning attachments and is also quickly converted into a **BLOWER** by removing bag and substituting coupling and guard.

Many users report time-and-fuel **SAVINGS** which go far toward writing off the cost of this unit in a single season.

YOUR FIRST STEP toward worth-while Boiler-room Savings is taken when you mail the coupon below for the new G-E folder on modern Furnace and Boiler Cleaning Equipment.



Write for your copy today

Furnace and Boiler Cleaners

GENERAL  ELECTRIC

GENERAL ELECTRIC COMPANY, Dept. 22-1221
 1285 Boston Ave., Bridgeport 2, Conn.

Certainly, I am interested in saving Fuel Dollars—let me have the new G-E Folder by return mail.

NAME.....
 ORGANIZATION.....
 ADDRESS.....
 CITY.....ZONE.....STATE.....

East Pepperell, Mass.—Bemis Bro. Bag Co. Robert B. LeRoy, formerly head of the paper control laboratory at St. Louis, has been appointed sales manager at the company's multiwall paper bag plant here.

Philadelphia, Pa.—Quaker Rubber Corporation. J. R. Keach has been appointed general manager. Mr. Keach was at one time purchasing agent for The Ohio Rubber Company, and is a past president of the Purchasing Agents Association of Cleveland.

Worcester, Mass.—Norton Company. W. Earle Shumway has been named man-



W. Earle Shumway

ager, sales engineering department, abrasive division, and Fred L. Curtis, sales manager, western region.

Seattle, Wash.—Leeds & Northrup Company. A new sales and service office has been opened here at 603 Stewart Street. Stratford B. Biddle, Jr., is manager.

Long Island City, N. Y.—Waldes Kohinoor, Inc. Harry Waldes has been named



Harry Waldes

executive vice-president of the company, to direct and supervise all administrative affairs.

Chicago, Ill.—Alrose Chemical Co. Ralph E. Kaye, Jr., has joined the company as mid-west sales representative, with headquarters at the company's office, 629 W. Washington Boulevard.

Milwaukee, Wis.—Durant Manufacturing Company. Ellsworth W. Crane has been named mid-west regional sales manager. (Please turn to page 338)



***Distinctively Designed...Easier Recognized
...Shows First Quality at First Glance***

Simonds "Red Tangs" . . . *the files that cut instead of scrape*, because they have teeth like a Simonds metal-cutting saw . . . will soon come to you in these distinctive ALL-RED packages.

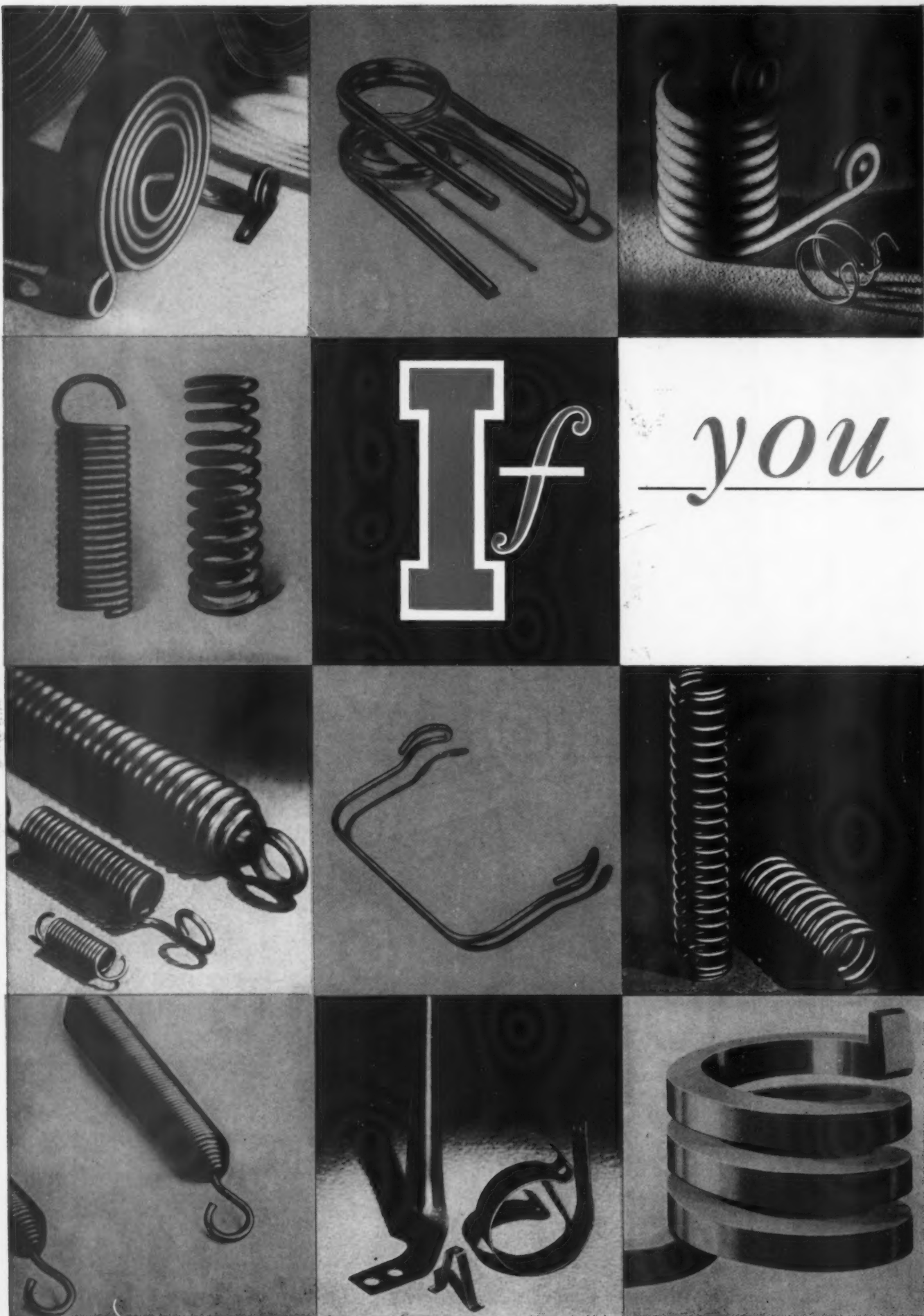
This modern dress is designed for "family resemblance" to other Simonds red-trademarked, red-packaged products . . . and for easier identification of the files that are made in first-quality only . . . the files that workers like because they cut faster with less "elbow-grease."

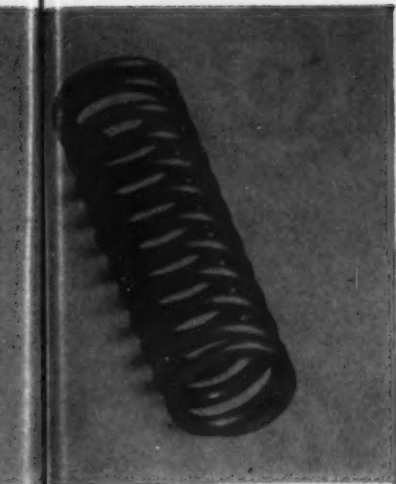
So watch for these new ALL-RED packages...and make it a point to specify Simonds "Red Tang" on your next file order.



FITCHBURG, MASS.

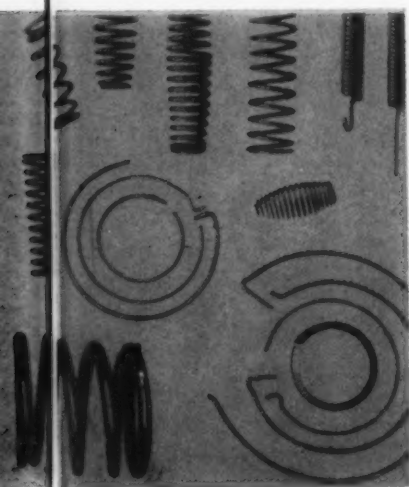
*Branch Offices in Boston, Chicago,
Los Angeles, San Francisco and Portland,
Ore., Vancouver, B. C.
Canadian Factory in Montreal, Que.*





use springs

...then this is for you!



● There is only one place where spring performance can be judged accurately. In service! That's where your choice of spring material spells the difference between bristly tempers and customer satisfaction.

While we can't advise you on the way to handle the *complaints* about spring failures, we believe we can give you some sound advice on how to *minimize* failures. And that is—*install American Quality Springs*.

In automobiles . . . farm equipment . . . alarm clocks . . . phonographs . . . typewriters . . . window shades and hundreds of other products, American Quality Springs have done an outstanding job. They have withstood extreme temperature changes. They've given years of faithful service under high stresses. They've been subjected to severe corrosive conditions and have come through with flying colors. And they've given admirable performance in applications where exceptionally close tolerance precision and unfailing uniformity were imperative.

In helping you work out your spring problem we offer the services of highly-trained spring engineers who keep in touch intimately with the latest metallurgical developments. And we place at your disposal production and testing facilities that are generally regarded as the finest in the country. Contact our nearest office or 408 Rockefeller Building, Cleveland 13, Ohio.

AMERICAN STEEL & WIRE COMPANY, GENERAL OFFICES: CLEVELAND, OHIO
COLUMBIA STEEL COMPANY, SAN FRANCISCO, PACIFIC COAST DISTRIBUTORS
TENNESSEE COAL, IRON & RAILROAD COMPANY, BIRMINGHAM, SOUTHERN DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK



AMERICAN QUALITY SPRINGS

UNITED STATES STEEL

*Air power
drives staples in!*

**SPEEDY
AIR-DRIVEN
TACKER**

*cuts assembly
costs 4 ways*



MIRRORS INSTALLED 5 TIMES FASTER when furniture maker changed from hand-nailing quarter rounds to use of Bostitch air-actuated stapling tackers... **ELIMINATED MIRROR BREAKAGE IN MANUFACTURE** because Bostitch tacker accurately places sturdy staples 1/16" from edges and drives them home without jarring... **CUT MATERIAL COSTS 10%** because Bostitch

Method permitted use of printed wood-grain cardboard instead of stained plywood to back up mirrors... **REDUCED MIRROR BREAKAGE IN SHIPMENT** and in customers' homes because Bostitch method caused turned edges of cardboard backs to cushion mirrors against shocks. *Investigate the Bostitch Method.* Use the coupon below for more information.



"COSTS CUT IN HALF in shipping room," wrote this power mower maker, when he changed from silicate and tape to a Bostitch Bottom Stitcher and 2 Bostitch Autoclench Staplers for top-sealing. Saved cost of new equipment in 7 weeks.



"TWICE AS FAST as hand-hammered riveting," said this large furnace maker when he started using Bostitch wire stitchers to assemble sheet metal parts. Wire stitches look better... cause less fracture of metal.

YOUR OWN FASTENING COSTS can probably dive downward with one or more of the 800 Bostitch machines speeding things up. 300 fieldmen in 112 key cities in the U. S. and 11 key cities in Canada make it easy for you to choose the best machines for your work. For more information, fill in this coupon today.

BOSTITCH, 496 Mechanic Street, Westerly, R. I.

My present fastening method utilizes:

Nails ☐ Glue ☐ Tape ☐ Tacks ☐ Thread ☐ Pins ☐ Rivets ☐ Spot Welds ☐

I fasten the following materials:

Wood ☐ Paper ☐ Rubber ☐ Plastics ☐ Fabrics ☐ Leather ☐ Light Metals ☐

Please send me literature on specific Bostitch machines for my fastening needs together with your free "Time and Money Saving" book.

Name..... Title.....

Firm.....

Street.....

City..... Zone..... State.....

BOSTITCH®
AND FASTER
fastens it better with wire

ALL TYPES OF MACHINES
FOR APPLYING STAPLES

ALL TYPES OF STAPLES
APPLIED BY MACHINES

New York, N. Y.—National Container Corporation. John H. Macleod has been appointed director of sales of both mill and corrugated paper products. According to Samuel Kipnis, president of the company, Mr. Macleod will be elected vice president and chairman of the company's sales committee. He was formerly vice-president in charge of sales for the Hinde & Dauch Paper Co.

Minneapolis, Minn.—Goodyear Tire and Rubber Company. H. R. Comstock has been appointed manager of the central



H. R. Comstock

division of the company's mechanical goods sales. He replaces H. E. Langdon, whose new duties have not been assigned.

Anaheim, Calif.—Chemical Department, General Electric Company. James R. Patterson has been appointed west coast manager of the chemicals division, to succeed C. S. Ferguson who recently resigned. With headquarters here, he will have charge of engineering, manufacturing, and sales of division products on the west coast and in the inter-mountain states.

Ampere, N. J.—Crocker-Wheeler Division, Elliott Company. C. Porter Packard has been appointed sales manager.



C. Porter Packard

He has a background of 24 years' experience in electrical application engineering which includes 17 years as sales engineer for the New York industrial division of Westinghouse. He has been Boston district manager for Crocker-Wheeler for the past three years.

New York, N. Y.—Metal & Thermit Corporation. General offices here have been moved to 100 east 42nd Street.

(Please turn to page 342)

DIRECT-TO-YOU SHIPMENTS OF BRONZE BAR STOCK CUT BEARING COSTS!

Stocks of N-B-M "Tiger" Bronze now located for fast delivery of the bar size you want, when you want it.

National Bearing Division has announced a new direct-shipment policy on "Tiger" Bronze Bar Stock—a policy designed to substantially reduce costs of bearings, *used for plant maintenance or on production lines.*

Stocks have been conveniently "spotted" to assure fast delivery. All popular sizes in 13" lengths are available—as-cast or machined cored and solids, or as-cast hexagons.

Product Designers and Plant Engi-

neers with an eye on bearing costs are urged to get the complete facts.

Inquiries receive prompt attention.

"TIGER" BRONZE . . . the ONE Bronze Alloy with ALL these features for longer bearing service at lower cost . . .

WEAR-RESISTANT—Has correct balance between bronze matrix and lead. *Lasts longer.*

ANTI-FRICTIONAL—Low coefficient of friction helps prevent shaft seizure. *Saves power.*

SHOCK-RESISTANT, EMBEDDABLE—Hard enough to stand up under heavy bearing loads. Soft enough to embed foreign material. *Protects the shaft.*

EASY TO MACHINE—With speeds as high as 3000 F.P.M. *Saves time.*

USE THIS COUPON —for price quotations by return mail, and new bulletin giving complete **FACTS** on physical properties, operating characteristics, bar types and sizes. Please send me your new Cored and Solid Bar Bulletin and prices on "Tiger" Bronze:

Name Title
Company
Address
City State

We use Bronze Stock for
Approximate poundage used per month:



AMERICAN

Brake Shoe

COMPANY

NATIONAL BEARING DIVISION

4940 Manchester Avenue • St. Louis 10, Mo.

PLANTS IN: ST. LOUIS, MO. • MEADVILLE, PA. • NILES, OHIO • PORTSMOUTH, VA. • ST. PAUL, MINN. • CHICAGO, ILL.

REWARD!



... Rich Rewards for those who find ways to use Veeder-Root Counters

Many's the manufacturer who started by saying: "But my product can't count — why should it?" ... and then got interested in the idea, and proceeded to figure a way to build-in Veeder-Root Counters as standard original equipment. For which, in every case, he collected handsome rewards in added sales for the new usefulness offered by his product.

Counting is good business for any product ... X-ray tubes ... machine tools ... engines ... rat traps ... textile machinery ... guns ... electronic equipment ... and now, what's yours? Among the thousands of Veeder-Root "success stories," there is probably some experience which may point the way to uncounted opportunities for you, too. And the quickest way to find out is to get one of your design engineers together with one of ours, and let them probe for new profits. *Say when.*

VEEDER-ROOT INCORPORATED, HARTFORD 2, CONNECTICUT
In Canada: Veeder-Root of Canada, Ltd., 955 St. James Street, Montreal 3. In Great Britain: Veeder-Root Ltd., Kilspindie Road, Dundee, Scotland.



FREE 8-page "COUNT BOOK" shows standard and some special types of V-R Counters for mechanical, electrical and manual operation. Write for your copy today.

Veeder-Root

COUNTERS

D.A.

An HONORARY DEGREE Conferred on
MIDWEST
 WELDING ELBOWS
By Pipe Welders Everywhere



Pipe welders who know Midwest Welding Elbows have conferred upon them an honorary degree unique in piping . . . "D. A." for "dimensional accuracy".

This degree was earned for Midwest Elbows by their unique process of manufacture. In this process, developed by Midwest, the elbow is first made slightly oversize. After welding it is reheated to forging temperature and brought to final size in compression dies. This relieves forming and welding stress . . . assures true circular cross-section, controlled wall thickness and accurate radius, included arc and tangents. The elbows are beveled on special machines which cut both ends simultaneously, holding exact included angle and center-to-end dimensions.

"D. A." is a degree which means a lot to pipe

welders. It means that they don't have to waste time lining up inaccurate fittings. It means that they don't have to spend time and weld metal in compensating for bad fit. And it means that they can produce better, cleaner, stronger welds with less trouble.

"D. A." saves money for you when it saves time and trouble for welders. Use Midwest "D. A." Elbows on your next job. Call your Midwest Distributor; there is one conveniently near you.

MIDWEST PIPING & SUPPLY CO., Inc.
 MAIN OFFICES: 1450 SO. SECOND STREET, ST. LOUIS 4, MO.
 Sales Offices: New York 7—30 Church St. • Chicago 3—79 W. Monroe St. • Los Angeles 33—520 Anderson St.
 Houston 2—1213 Capitol Ave. • Tulsa 3—533 Mayo Bldg.
 Boston 27—426 First St. • Stocking Distributors in All Principal Cities

*Dimensional Accuracy



MIDWEST WELDING FITTINGS IMPROVE DESIGN AND REDUCE COSTS

LET AN *Allison* **ABRASIVE ACE CUTTING EXPERT**

GIVE YOU THE
right WHEEL
FOR YOUR
SPECIFIC JOB

Allison

abrasive
**CUTTING
WHEELS**

"On the job" analysis
is your assurance
of maximum savings.

THE ALLISON COMPANY
257 Island Brook Avenue
Bridgeport 8, Connecticut

Chicago, Ill.—The Round Chain & Mfg. Co. John G. Pacan has been named district sales manager and will be in charge of sales activities in the Wisconsin, Minnesota, Iowa, Nebraska and North and South Dakota territories.

St. Louis, Mo.—Wagner Electric Corporation. The southern portion of the sales territory served by the St. Louis electrical division branch has been set up as a separate unit, with headquarters in Memphis and a sales office in New Orleans. A. C. Allen will remain at Memphis as branch manager of the newly established territory.

Chicago, Ill.—The Imperial Brass Mfg. Co. Frederick C. Shafer, for the past 12 years vice-president of the company, and associated with it for the past 24 years, has been elected president and chairman



F. C. Shafer



J. T. Greenlee



C. H. Benson

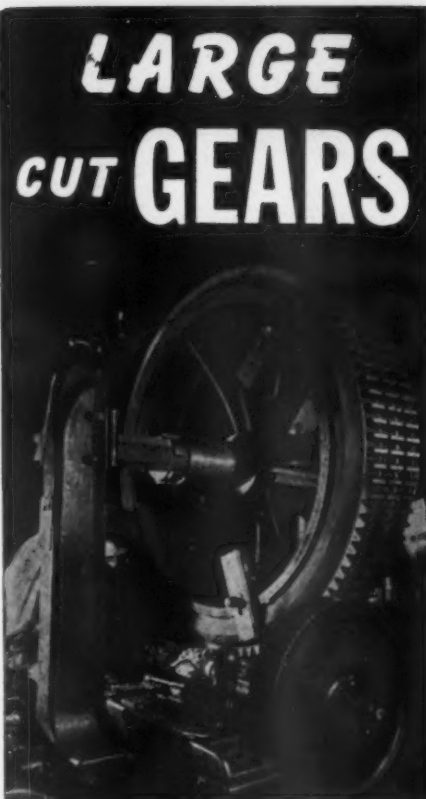
of the board of directors. C. H. Benson and J. T. Greenlee have been named vice-presidents. Mr. Benson is sales manager, distributor sales, and Mr. Greenlee is sales manager, original equipment sales.

Los Angeles, Calif.—John A. Roebing's Sons Company. Alfred Whittaker has been appointed Pacific Coast manager of the woven wire fabrics division, with headquarters here at 216 S. Alameda Street. His territory includes California, Washington and Oregon, as well as Nevada, Arizona, Idaho and New Mexico.

Fort Wayne, Ind.—General Electric Company. C. E. Burke has been named manager of sales of the company's specialty transformer and ballast divisions.

Trenton, N. J.—Gould Storage Battery Corporation. F. A. Miller has been named northeast regional manager and Mal Janis has been advanced to the post of New York district manager, the position formerly held by Mr. Miller. The northeast region consists of northern New Jersey, eastern New York, and New England.

(Please turn to page 344)



Cutting three identical spur gears simultaneously at Simonds Gear.

Cut Gears for Industrial Needs!

For special gears in larger sizes—exact duplicate gears for replacements—for every heavy-duty industrial gear application—look to SIMONDS GEAR where specialty gears for heavy industry have been a custom service for more than 50 years. Within easy shipping distance of many heavy industry plants—with a personalized service designed to meet your most exacting specifications—SIMONDS GEAR provides an unusually prompt and efficient service on even the most unusual gear requirements. Sizes range up to 145" dia. in all popular gear-making materials. Send your inquiry today and get acquainted with SIMONDS GEAR Service.

SPUR GEARS

BEVEL GEARS • MITRE GEARS

WORMS • WORM GEARS

RACKS • PINIONS

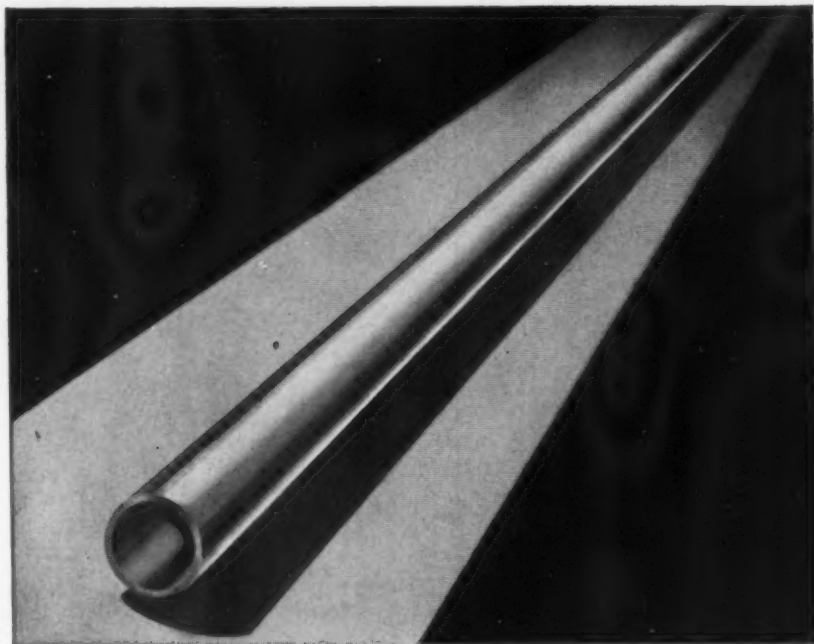


Stock carrying distributors for Ramsey Silent Chain Drives and Couplings, V-Belts.

THE
SIMONDS
GEAR & MFG. CO.

LIBERTY at 25TH PITTSBURGH 22, PA.

To be sold ... at \$9,600,000 per ton!



● \$9,600,000 a ton isn't hay. Yet it is a reasonable price for 2" O.D. tubing after it has been drawn down to a diameter less than that of human hair.

We believe we can supply you with small tubing—normally .010" to .625" O.D.—in more sizes, analyses, and forms (either Seamless or WELDRAWN*) than any other manufacturer. In brighter finishes. To closer tolerances. And with uniformity.

Our service, because of our scope, permits recommendations without bias ... offers know-how,

facilities and equipment only possible because of superior concentration on small tubing—technology in tubing.

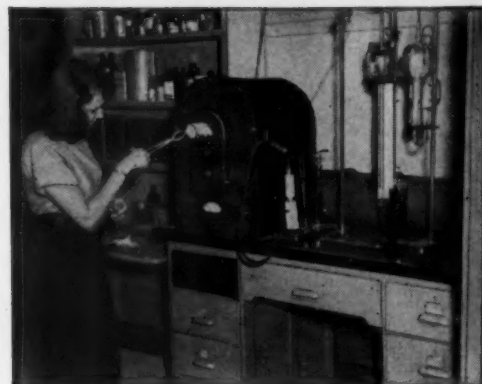
You also have a time advantage in dealing with Superior—with distributor warehouse stocks in 55 locations throughout U. S. and Canada. These distributors offer not only availability, but helpful engineering service. Should you stump them—we're ready to jump in at any time to help. Let us send you our Bulletin 31. Superior Tube Company, 2034 Germantown Avenue, Norristown, Pennsylvania.

Which Is The Better For Your Product ...

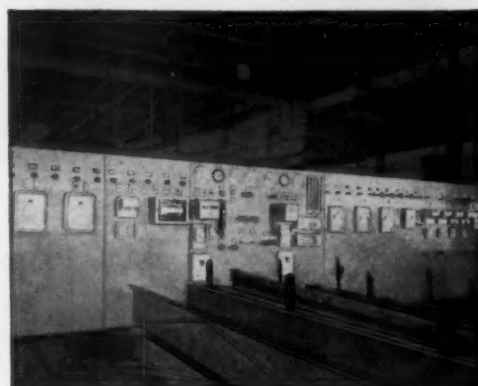
SEAMLESS...? The finest tubes that can be made. In all O.D.'s from 1 3/8" and lower. Excellent for forming, bending, machining, etc. carbon, alloy, stainless, non-ferrous and glass sealing alloys.

Or WELDRAWN*...? Welded and drawn from bright-annealed, cold rolled strip. Economical. Available in stainless, non-ferrous and glass sealing alloys, but not in as wide a range of sizes as seamless.

*Reg. U. S. Trademark—Superior Tube Company • West Coast: PACIFIC TUBE COMPANY, 5710 Smithway St., Los Angeles 22, Cal. • ANgelus 2-2151



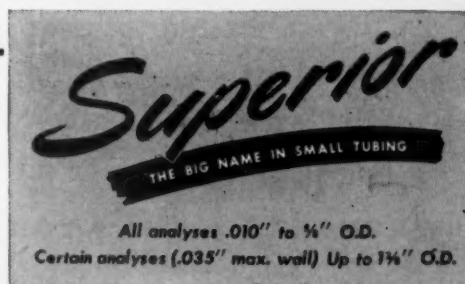
Routine tests are made to determine the carbon content of both raw material and finished tube. No effort has been spared to produce the highest quality small tubing.



Bright annealing and heat treating furnaces, with instrumentation for control, assure uniform structure, a clean smooth surface and precise temper tolerances.



Final Inspection where each finished length of tubing is inspected for outside and inside finish, size and straightness.



BETTER BUY BILLINGS



SOCKETS

Billings VITALLOY® Forged
Sockets are the aristocrats of the industrial wrench field. They're engineered and designed to meet requirements where precision tools are essential. They're forged of special analysis alloy steel and heat treated to Billings rigid specifications. They stay on the job longer. Three patterns—Standard, Deep Wall, Universal Flex—make Billings sockets adaptable to every Industrial use. Experienced craftsmen always—reach for a Billings.

BETTER BUY
BILLINGS®

WRENCHES & SHOP TOOLS

FROM BILLINGS INDUSTRIAL SUPPLY DISTRIBUTORS

THE BILLINGS & SPENCER CO., HARTFORD 1, CONN., U.S.A.



Allentown, Pa.—Ferro Enamel Corporation. Harry M. Platt, 2045 Pennsylvania Avenue, has been appointed industrial oven and dryer sales representative in eastern Pennsylvania.

Rochester, N. Y.—Scovill Manufacturing Company. A new sales and service office has been opened here to represent the company's mill products, manufacturing and button and fastener divisions. The office at Syracuse, N. Y. has been closed.

Pittsburgh, Pa.—The Riverside Metal Co. William M. Orr Co., 1230 Brighton Road, N. S., has been appointed a warehousing distributor in western Pennsylvania, eastern Ohio, and West Virginia.

Chicago, Ill.—Gould Storage Battery Corporation. Regional offices here have been moved to larger quarters at 100 East Ohio Street.

Pittsburgh, Pa.—National Electric Products Corp. Robert C. Bennett, Jr., is the



Robert C. Bennett, Jr.

new vice-president and sales manager. He has taken over the responsibilities of Harold J. Newton, recently retired.

Riverside, N. J.—The Riverside Metal Co. A new sales office has been opened here under the direction of Robert G. Clark to service the seaboard area from Richmond, Va., north to Trenton, N. J., including Maryland, Delaware, New Jersey, and Pennsylvania as far west as Scranton, Wilkes-Barre, and Reading.

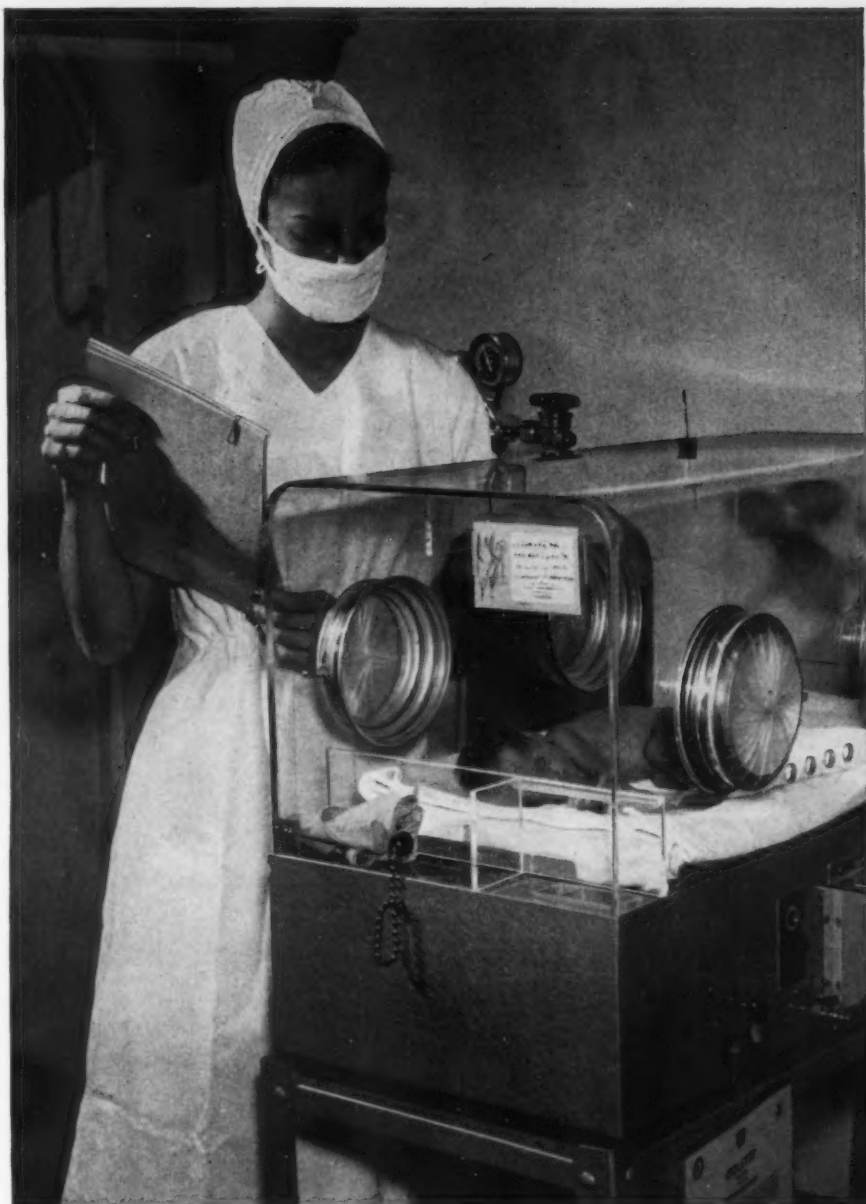
Cincinnati, O.—Tinnerman Products, Inc. The district office here has been moved to Roselawn Center Building, 1717 Section Road. Jack McLaughlin is manager of the district.

Chicago, Ill.—Inland Steel Company. Robert M. Buddington has been appointed assistant manager of sales, sheet and strip division. He replaces William P. Burke, who has resigned in order to start his own business.

Chicago, Ill.—The Texas Company. C. H. Dodson has been appointed manager of the company's Chicago sales division, replacing the late J. W. McLin. W. A. Strimple succeeds Mr. Dodson as manager of the Denver division.

Chatham, Ontario—Tube Turns of Canada Limited. Arthur H. Brodie has been named district manager.

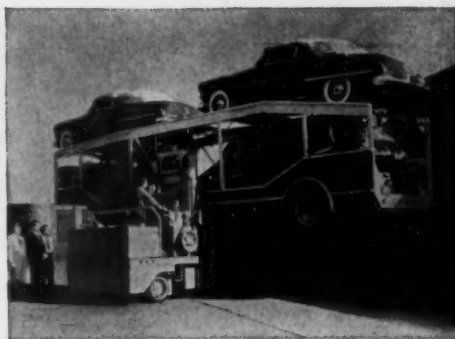
(Please turn to page 346)



INCUBATOR BABY THRIVES in its electrically safeguarded house of glass. Tragedy might follow should electric current fail . . . and it can fail despite the utmost vigilance of light and power companies. Danger of current failure is avoided in many hospitals and other buildings by the use of Exide Emergency Power and Lighting Systems.



BUS RIDERS expect dependable, comfortable and economical service. To help provide it, many operators equip their buses with Exide Batteries for starting, lighting, ignition and other electrical services.



30,000 POUND LIFT is easy for this 110,000-lb. capacity truck. It is one of thousands of battery-powered materials-handling trucks needed by industry to maintain high production and keep down costs. The majority of these trucks, large and small, are powered by Exide Batteries.



THIS COAL MINE HUSKY is one of thousands of battery-powered locomotives and shuttle cars needed in mining the 650,000,000 tons of coal we use each year. The majority are powered by Exide Batteries.

In numerous ways Exide Batteries are serving you, for there are Exides for every storage battery need. They provide motive power for battery electric trucks, mine locomotives and shuttle cars. On railroads they provide power for car lighting, air-conditioning, Diesel locomotive cranking, signal systems. They are used on airliners, government and personal planes . . . and on ocean, harbor and river vessels.

Exide Batteries are used in telephone and telegraph service . . . in radio and television broadcast . . . in electric light and power plants . . . in municipal fire alarm systems. And on millions of cars, trucks and buses, they daily prove that, "When it's an Exide, you start."

Information regarding the application of storage batteries for any business or industrial need is available upon request.

THE ELECTRIC STORAGE BATTERY CO.
Philadelphia 32
Exide Batteries of Canada, Limited, Toronto

Exide* BATTERIES HAVE PROVED THEIR
DEPENDABILITY IN VITAL SERVICES FOR 62 YEARS

*Reg. Trade-mark U. S. Pat. Off.



The Houghton line is so broad we suggest you write for a copy of this 6-page folder for your reference. It shows many ways in which Houghton products can save you time and money.

More than 1,000 individual items comprise the Houghton line of maintenance and processing oils and chemicals for metal, textile and general industry. They're backed by 85 years of experience, by 120 technically trained field men and by a practical Research Staff. For "Know-How," know Houghton!

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Speer Here ...

Speer carbon brushes are installed in hundreds of motor generator sets because they have good contact and long life ... two mighty important brush requisites for dependable arc welding!

No matter what your brush requirements may be, you'll find that Speer's rigid testing under actual service conditions, have made the Speer carbon brush an outstanding performer regardless of load conditions. For maximum efficiency and smooth, trouble-free performance ... insist on Speer carbon brushes for any motor or generator application.

helps make sound welds here!



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CARBON COMPANY
ST. MARYS, PENNA.

brushes • contacts • welding electrodes • graphite anodes • rheostat discs • packing rings • carbon parts
CHICAGO • CLEVELAND • DETROIT • MILWAUKEE • NEW YORK • PITTSBURGH

Rochester, N. Y.—Aurora Metal Company. A. W. Pollard of 82 St. Paul Street is the company's sales engineering representative in New York state exclusive of the metropolitan New York city area.

North Chicago, Ill.—Atlas Power Company. Joseph H. Harris has been named sales manager of the company's industrial finishes department here.

New York, N. Y.—United States Steel Products Company. Thomas N. Stinson, formerly district sales manager of the St. Louis, Mo., territory has been appointed general manager of sales with headquarters at 30 Rockefeller Plaza.

New York, N. Y.—Raybestos-Manhattan, Inc. Offices of the company are now located at 500 Fifth Avenue.

Port Chester, N. Y.—Russell, Burdsall & Ward Bolt and Nut Company. Emmet F. Harding has joined the company as man-



Emmet F. Harding

ager of screw sales. He was formerly general sales manager of American Hardware Corporation's Corbin Screw Division at New Britain, Conn.

Alliance, O.—Welded Tube Division, The Babcock & Wilcox Tube Company. John A. Menster has been named assistant manager of sales.

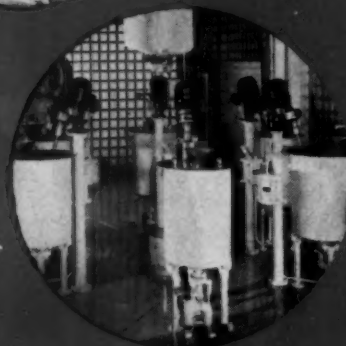
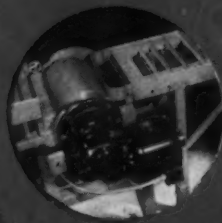
Warren, Pa.—Sylvania Electric Products, Inc. Howard M. Boyd has been appointed sales manager for the company's parts division.

Manhasset, L. I., N. Y.—Marion Electrical Instrument Company. Harold H. Everett, 490 Plandome Road, will represent the company in the New York, Long Island and Westchester area.

Philadelphia, Pa.—Arcos Corporation. The following appointments have been made: Bernard E. David as special field engineer in Los Angeles, Calif.; Walter Gordon List as special field engineer in the Ohio-Western Pennsylvania territory; J. J. Schlass as sales representative in the Philadelphia district.

CLASSIFIED SECTION

SEE PAGE 430



On big jobs or little ones it pays to take advantage of Master's unusual ability to supply the RIGHT horsepower, the RIGHT shaft speed, the RIGHT construction features, the RIGHT mounting . . . all combined into one compact power package.

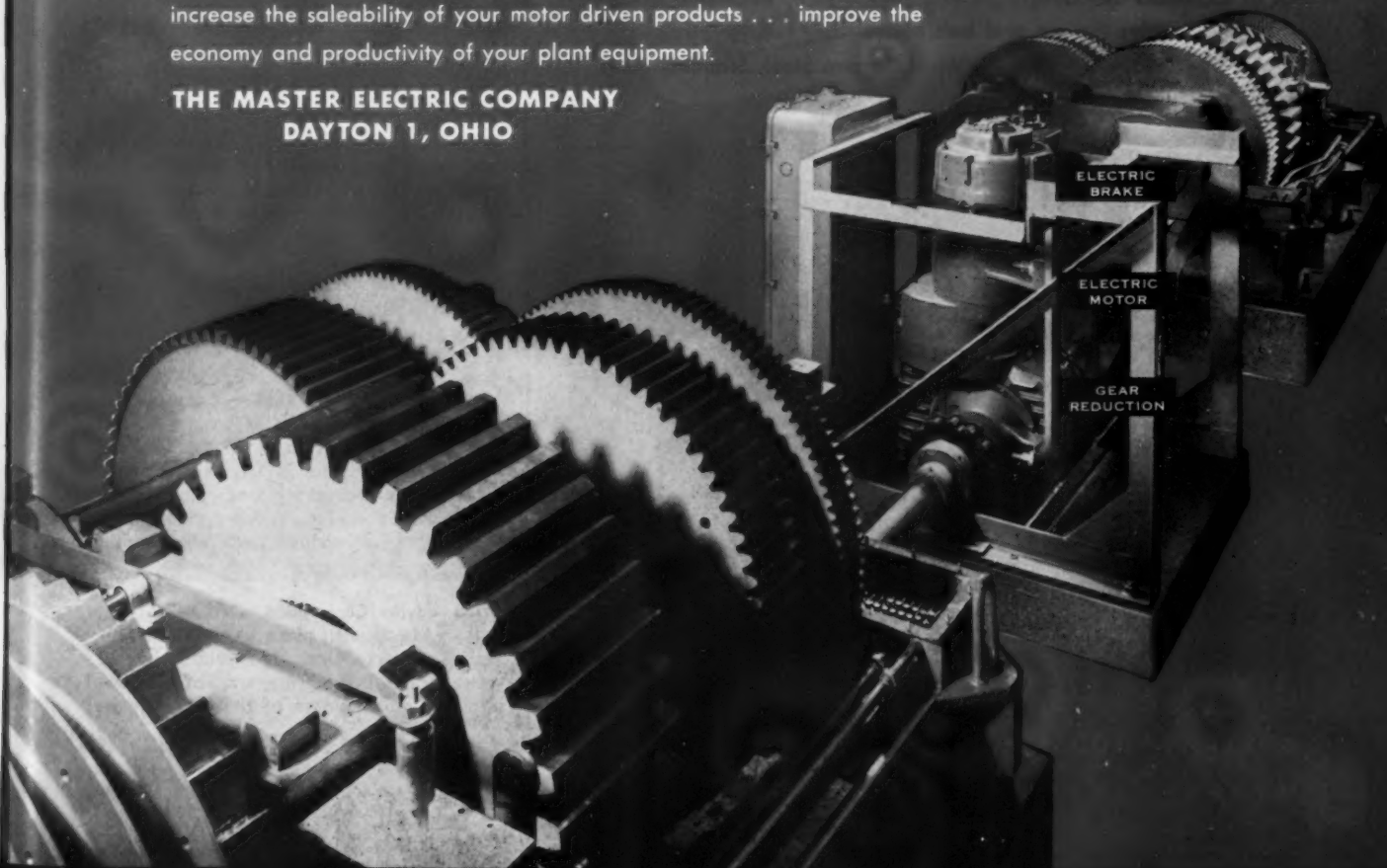
Don't put up with make-shift assemblies when you too may be enjoying these advantages. Master Motors, available in thousands and thousands of types and ratings (up to 150 HP) give you a selection you can get nowhere else.

Open, enclosed, splash proof, fan-cooled, explosion proof . . . horizontal or vertical . . . for all phases, voltages and frequencies . . . in single speed, multi-speed and variable speed types . . . with or without flanges or other special features . . . with 5 types of gear reduction up to 432 to 1 ratio . . . with electric brakes . . . with mechanical variable speed units . . . and for every type of mounting . . . Master has them all and so can be completely impartial in helping you select the one best motor drive for YOU.

Select the RIGHT power drive from Master's broad line and you can increase the saleability of your motor driven products . . . improve the economy and productivity of your plant equipment.

**THE MASTER ELECTRIC COMPANY
DAYTON 1, OHIO**

little ones or **BIG** ones





BEALL

SPRING WASHERS

KEEP BOLTED ASSEMBLIES *permanently* TIGHT

BEALL helical SPRING WASHERS have "live action" and constantly exert tightening pressure over a long range. They compensate for ALL causes of looseness including vibration, bolt stretch, wear and breakdown of finish under the nut and bolt head.

IN STOCK in all Standard Sizes; made of Carbon Steel, Stainless Steel, Everdur, Duronze, and other metals.

BEALL TOOL DIVISION HUBBARD & CO.

160 Shamrock St., East Alton, Ill.

p. s. Please write or wire for latest Catalog and Price List.

TIGHT
when assembled



TIGHT
in service



TIGHT
after long service



INDUSTRIAL DEVELOPMENTS

Toledo Standard Commutator Co. has been organized and has taken over the businesses of The Toledo Standard Commutator Company, Toledo, O.; Homer Commutator Corp., Cleveland, O.; and Hillsdale Commutator Corp., Hillsdale, Mich. The company has begun operations in a new plant at Owosso, Mich.

E. I. du Pont de Nemours & Company has announced plans for construction of a new unit at Camden, S. C. to manufacture "Orlon" acrylic fiber in staple form.

Hillman Coal & Coke Company has disposed of its Ontario Mine, located near Ellsworth, Washington County, Pa., to The Buckeye Coal Company, a subsidiary of The Youngstown Sheet and Tube Company of Youngstown, O., and Stelco Coal Company, a subsidiary of The Steel Company of Canada, Limited, Hamilton, Canada.

Bausch & Lomb Optical Company, Rochester, N. Y., has acquired the Riggs Optical Company of Chicago, an affiliated distributor for many years. The Chicago firm will be known as Bausch & Lomb Optical Co., central division, with headquarters at 18 S. Michigan Avenue.

Wagner Electric Corporation, St. Louis, Mo., has announced the election of P. B. Postlethwaite as chairman of the board, a newly created office. Mr. Postlethwaite, who has been president of the company and chairman of the executive committee for the past twenty-four years, recently retired as president at his own request. J. H. Devor, who has been vice-president since 1941, has been elected president. H. N. Felton, manager of the St. Louis sales branch, was elected vice-president in charge of sales.

Pressed Steel Car Co., Inc., Chicago, Ill., in line with its established diversification program, has acquired the following steel products manufacturing companies: Rice & Adams Corp., Buffalo, N. Y., producer of dairy equipment; C. R. Jahn Company, Savanna, Ill., maker of truck-trailers; and Erie Manufacturing Co., Inc., Chicago, Ill., manufacturer of automobile radiator grille guards.

Goodyear Tire and Rubber Company has announced that a \$1,000,000 expansion and improvement program at its St. Mary's, O. plant is now under way. Ground has already been broken for a new building to house molded and extruded goods manufacture, warehousing and engineering services.

The Udylyte Corporation, Detroit, Mich., will go ahead with plans to acquire Frederic B. Stevens, Inc., as a wholly owned subsidiary, following approval of the proposal by stockholders of the corporation.

(Please turn to page 350)

to meet the
ever-growing demand for

SUPERIOR

light
gauge

STAINLESS STEEL

(as thin as .004!)

Superior Stainless Steel Strip in light gauges is produced on special cold finishing mills that are the most modern in the industry. Precision counts in light-strip uses . . . you get it when you specify SUPERIOR!

Serving these and
many more applications

Television Tubes
Decorative Mouldings
Weatherstrip
Flexible Tubing
Spring Temper Washers
Gaskets
Ball Bearing Separators
Name Plates

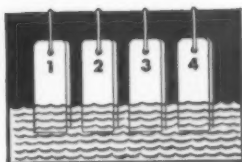
Automotive Trim
Springs
Shims
Drawer Pulls
Linoleum Bindings & Edgings
Metal Tags
Diaphragms

Here's
high precision
in wide widths

Here's
extreme precision in narrow strip

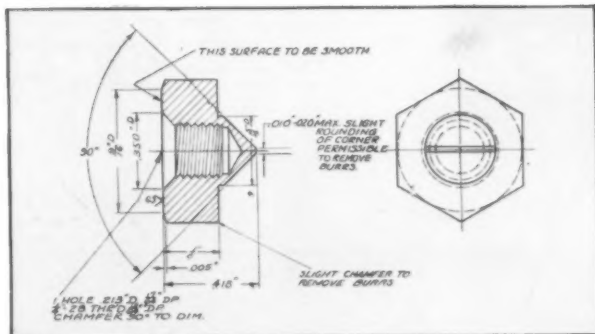
Superior Steel
CORPORATION

CARNEGIE, PENNSYLVANIA



with PAINT

— the small extra first cost of test samples pays off in assurance of efficiency and durability of the protected surface.



with TRACING CLOTH . . .

— the small extra first cost of Arkwright Tracing Cloth, over that of tracing paper, repays many times over in the efficiency and durability of valuable drawings.

Arkwright Tracing Cloth has a universal reputation for staying clear, clean and pliable through years of service . . . no ghost-producing spots . . . no tear-causing brittleness. Special mechanical processing all the way through gives it this combined clarity and toughness—out-performing perishable tracing paper many times over.

For every sketch or drawing worth keeping — on the job or in the file — protect your investment with Arkwright! Generous working samples free upon request. Sold by leading drawing material dealers. Arkwright Finishing Company, Providence, R. I.

The Big Six Reasons Why Arkwright Tracing Cloths Excel

1. Erasures re-ink without feathering.
2. Prints are always sharp and clean.
3. Tracings never discolor or go brittle.
4. No surface oils, soaps or waxes to dry out.
5. No pinholes or thick threads.
6. Mechanical processing creates permanent transparency.



ARKWRIGHT

TRACING CLOTHS

AMERICA'S STANDARD FOR OVER 25 YEARS

Bath Iron Works Corporation, through its subsidiary, the Pennsylvania Crusher Company, Philadelphia, Pa., has purchased all the outstanding capital stock of the Dixie Machinery Manufacturing Co., St. Louis, Mo.

Centralab Division of Globe-Union Inc., Milwaukee, Wis., has acquired its fifth plant devoted exclusively to the manufacture of electronic component parts from Eclipse Molded Products Co., Milwaukee.

Bennett Machinery Company, 375 Allwood Road, Clifton, N. J., has opened a large new plant for the rebuilding, storage and shipment of machine tools for industry. In addition to rebuilt machine tools, the company provides new tools and, for less exacting requirements, good used tools.

Sheffield Tube Corporation, currently in its 100th year of business, has grown considerably since the original firm began



Top: Sheffield's original laboratory. Bottom: Present factory and home office.

with the gabled frame laboratory in New London, Conn., shown in the accompanying photograph. The bottom picture shows the modern 1950 factory and home office. The wing nearest the camera occupies the ground on which the original laboratory stood.

St. Regis Paper Company (Canada) Limited has announced the formation of a Panelyte division which will supply the requirements of the Canadian market for refrigeration, industrial and decorative Panelyte laminated plastics. A new plant will be constructed at St. Johns, Quebec.

Aircraft Specialties Company, Inc., Hicksville, N. Y., has formed a new division to manufacture Strux under license agreement with E. I. du Pont de Nemours & Company. Formerly marketed as "CCA", the cellular cellulose acetate is an expanded plastic material made in an extrusion process. It is well adapted to sandwich construction because of strength and may be used with relatively high temperatures.

(Please turn to page 352)

THE SMOOTH-HAIRED GERMAN SHEPHERD is considered by many the king of the working dogs. He is loyal, suspicious of strangers, easily trained and has unusually keen senses of sight and smell. Average height of the breed is 24 inches.

PEDIGREE CERTIFICATE
THE AMERICAN KENNEL CLUB

Name of Dog: *Belmont's Elba v. Bredwin* Sex: *Female* Studbook No.: *4355, 4356*
 Breed: *German Shepherd Dog* Vol.: *34* Color: *Black and silver*
 Date Whelped: *October 18, 1938*
 Owner: *John F. Belmont*

Sire v. Dam: <i>Elba v. Bredwin</i> 4337885	Dam v. Sire: <i>Adrian v. Bredwin</i> 4337885
Grand Sire v. Grand Dam: <i>Adrian v. Bredwin</i> 4337885	Grand Dam v. Grand Sire: <i>Adrian v. Bredwin</i> 4337885
Great Grand Sire v. Great Grand Dam: <i>Adrian v. Bredwin</i> 4337885	Great Grand Dam v. Great Grand Sire: <i>Adrian v. Bredwin</i> 4337885

This pedigree is a true copy from the records of the American Kennel Club.
 In witness whereof the Official Seal is affixed hereto this 13th day of October, 1938.



To guard against shipping damage Use the Box with the Pedigree



WHEN YOU ORDER boxes with a pedigree you can be sure the carload shipments you receive will measure up to the same high standards as submitted samples or previous shipment.

That's why Gulf Oil Corporation relies on Union boxes to protect its cans of famous Gulf Oil from refinery to service stations all over the country.

Every month more makers of famous brand products are shipping in Union boxes.



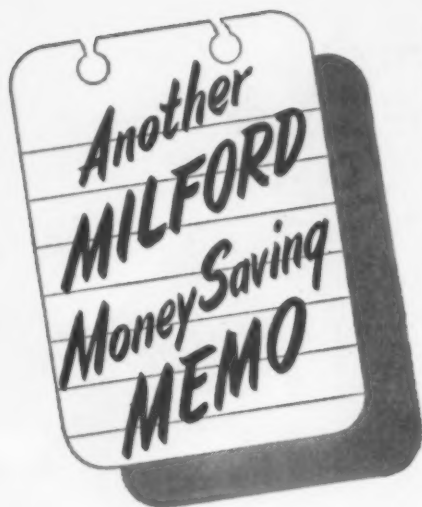
Dependable Packaging
Since 1872

UNION Corrugated Containers

UNION BAG & Paper Corporation

Principal Offices: WOOLWORTH BLDG., NEW YORK 7, N. Y.

Corrugated Container Plants: SAVANNAH, GEORGIA • CHICAGO, ILLINOIS • TRENTON, NEW JERSEY



**REDUCE WASTE
IMPROVE WORK
SAVE TIME**

WITH

MILFORD

Profile Saw Blades

MILFORD Profile Saw has long been accepted by tool and die makers as a basic tool for internal or external contour sawing. Originated by MILFORD, this narrow blade for contour cutting has milled, precision-set teeth — follows a straight or curved line fast and accurately. Your MILFORD Distributor can serve you from stock.

This booklet tells you more. Get it and other money - saving MILFORD literature from your Distributor today, or write us direct.



THE HENRY G. THOMPSON & SON CO.

Saw Specialists Exclusively For Over 70 Years
NEW HAVEN 3, CONNECTICUT, U.S.A.

Profile and
Band Saw Blades



Rezistor & Duplex
Hack Saw Blades

SOLD THROUGH SELECT INDUSTRIAL DISTRIBUTORS

National Starch Products, Inc., New York, N. Y., will take over all formulas, manufacturing procedures and dextrine accounts of Arnold, Hoffman & Co., Inc., Providence, R. I.

National Electric Products Corp., Pittsburgh, Pa., has purchased I. A. Bennett & Co., Chicago, Ill., for 46 years an exclusive sales agent in 15 midwestern states for the National line of roughing-in materials.

Allegheny Ludlum Steel Corporation, Pittsburgh, Pa., has announced plans for a new \$23,600,000 plant improvement program to meet ever-changing and increasing demands for high alloy steels and electrical steels. This is in addition to a five-year program costing \$30,000,000 started immediately after the war and now in the final stages of completion.

The Blackburn Specialty Company, Cleveland, O., has changed its name to Blaco Manufacturing Company, and products manufactured will be sold under the new trade name "Blaco." There are no changes in management personnel.

The Arthur Colton Division, Snyder Tool & Engineering Company, Detroit, Mich., will build and market powdered metal presses incorporating the patents, designs and process techniques developed by Michigan Powdered Metal Products Company, Northville, Mich.

Automatic Steel Products, Inc., Canton, O., has taken over the active management of The Cleveland Tapping Machine Company of Hartville, O. and will continue its operation under that name. A. R. Wise has been appointed a vice-president and will be in charge of sales.

Process Industries Engineers, Inc., Pittsburgh, Pa., has announced the formation of a manufacturing division to accommodate demands for fabrication of specially engineered equipment for the chemical, petroleum, food and allied industries.

♦ ♦ ♦

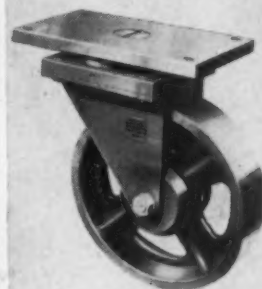
GLYCERINE DATA FOR BUYERS IN FIVE NEW BOOKLETS

Four booklets, covering the use of U.S.P. glycerine in the fields of foods, drugs and cosmetics, alkyd resins and ester gums, and textiles, and a fifth work which is a general survey of all other glycerine uses, have been published by the Glycerine Producers' Association. They combine basic technical data of concern to chemists, engineers, etc., with interesting facts about usage for the non-technical buyer.

Included in all of the booklets are tables of specific gravity, viscosity, freezing point, etc. of aqueous glycerine solution at various concentrations, and a bibliography of references.

The booklets have been prepared with the assistance of technical consultants, and the research laboratories of the Glycerine Producers' Association. Copies can be had free on request to the Glycerine Information Service, Dept. PR, 295 Madison Avenue, New York City 17.

For Savings



Specify

Darnell CASTERS

**If you want maximum
floor protection, economy
and efficiency Demand
Darnell Dependability...Made to give an
extra long life of satisfactory
service**

Free Manual

DARNELL CORP. LTD.
LONG BEACH 4, CALIFORNIA

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STANDARDS and SPECIALS by the Millions

THE FERRY CAP & SET SCREW CO.
2165 SCRANTON ROAD • • • CLEVELAND 13, OHIO



"SHINYHEADS"

America's Best Looking Cap Screw

Made of high carbon steel — AISI C-1038 — to standards for Full Finished hexagon head cap screws — bright finish. Heads machined top and bottom. Hexagon faces clean cut, smooth and true, mirror finish. Tensile strength 95,000-110,000 p.s.i. Carried in stock.



"LO-CARBS"

Made of AISI C-1018 steel — bright finish. For use where heat treatment is not required and where ordinary hexagon heads are satisfactory. Hexagon heads die made to size — not machined. Points machine turned. Tensile strength 75,000-95,000 p.s.i. Carried in stock.



FILLISTER CAP SCREWS

Heads completely machined top and bottom. Milled slots — less burrs. Flat and chamfered machined point. Carried in stock.



"SHINYLAND" STUDS

All studs made steam-tight on tap end unless otherwise specified, with flat and chamfered machined point. Nut end, oval point. Land between threads shiny, bright, mirror finish. Carried in stock.



CONNECTING ROD BOLTS

Made of alloy steel — heat treated — threads rolled or cut — finished to extremely close thread and body tolerances — body ground where specified. Expertly made by the pioneers in producing connecting rod bolts by the cold upset process.



FERRY PATENTED ACORN NUTS

For ornamental purposes. Steel insert — steel covered. Finish: plain, zinc plated, cadmium plated. Size: 9/16", 3/4", 15/16" across the flats.



"HI-CARBS"

Heat Treated Black Satin Finish

Made of high carbon steel — AISI C-1038. Furnished with black satin finish due to double heat treatment. Hexagon heads die made, not machined. Points machine turned; flat and chamfered. Tensile strength 130,000-160,000 p.s.i. Carried in stock.



SET SCREWS

Square head and headless — cup point. Case hardened. Expertly made by the pioneers in producing Cup Point Set Screws by the cold upset process. Cup points machine turned. Carried in stock.



FLAT HEAD CAP SCREWS

Heads completely machined top and bottom. Milled slots — less burrs. Flat and chamfered machined point. Carried in stock.



ADJUSTING SCREWS

Valve tappet adjusting screws — Hexagon head style — to blue print specifications — hexagon head hard; polished if specified — threads soft to close tolerance — points machine turned; flat and chamfered.



SPRING BOLTS

Case hardened to proper depth and ground to close tolerances. Thread end annealed. Supplied in various head shapes, with oil holes and grooves of different kinds, and flats accurately milled.



STANDARDS
carried by
**LEADING
DISTRIBUTORS**

SPECIALS**
furnished to
**BLUE PRINT
SPECIFICATIONS**

**WRITE FOR
INFORMATION**

SEND FOR SAMPLES

Pioneers and Recognized Specialists, Cold Upset Screw Products since 1907

Tie it tight...

that means GERRARD!

TIGHT as tight can be . . . that's the kind of tie you get when you use the Gerrard method of strapping. Gerrard Steel Strapping is *round* . . . that's why it clinches evenly at the corners and distributes the stress evenly through its diameter. Danger of breakage . . . and damage claims, too . . . are sharply reduced. Packages remain neat and firm from plant to destination.

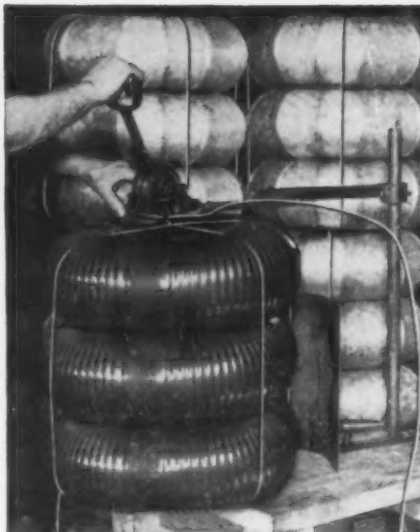
Gerrard machines and strapping, in a wide range of sizes, can be used to tie small parcel post packages, heavy pallets or carload lots of steel pipe, plate and tinplate.

And Gerrard Round Steel Strapping costs about 40% less than any other metal reinforcement.

Write for a free copy of *Blue Book of Packaging*. And consult a Gerrard engineer about your packaging problems. His services are available free of charge.

**Gerrard Steel Strapping Company,
4713 So. Richmond St., Chicago 32, Ill.**

Model O is semi-automatic. Operator just drapes Gerrard Round Steel Strapping around the carton and presses thumb lever. The machine tensions the strap, forms its own twisted seal, cuts the strap neatly, and sets the strapping for the next operation. Below, one strap secures bread cartons.



Gerrard Round Steel Strapping is adaptable to a wide variety of applications. Model TE is used to bundle stove pipe into a firm, neat package that is easy to handle.



Twenty-five heavy rough forgings are strapped into one secure unit to permit easy handling with a magnet crane. Three Gerrard Round Steel Straps hold each bundle firmly.

GERRARD

ROUND STEEL STRAPPING

UNITED STATES STEEL



G. E. ANNOUNCES SERVICE PLAN ON X-RAY EQUIPMENT

An x-ray service plan that is expected to enable industry to cut costs, perform research and control product quality without investing in equipment has been announced by General Electric X-Ray Corp., 4855 Electric Ave., Milwaukee 14, Wis.

For the first time industry will be offered not merely an x-ray apparatus but a "packaged" x-ray service, complete with equipment, maintenance, repair parts, tubes and instruction, all covered by one monthly charge.

The company has pointed out that industrial use of x-ray has grown rapidly in three different directions.

1. Good processors and manufacturers of sundry assemblies have found that x-ray fluoroscopy controls and improves the quality of their products by detecting hidden faults;

2. Metal fabricators and foundries with x-ray inspection have improved process control and sales acceptance in many forms of fusion welding; foundries have developed casting techniques with x-ray that result in lower production costs, increased yield and reduced scrap;

3. Research and process control laboratories use x-ray diffraction for qualitative and quantitative analysis of chemical compounds and metallurgical processes to develop new products and control quality of existing processes.

The chief limitation hitherto has been the necessity for the initial investment in equipment, plus such factors as tubes, parts, maintenance, depreciation, taxes, etc. Under G.E.'s Maxiservice plan, the one monthly charge covers everything in one package—rental of the equipment, instruction in its use, maintenance service, replacements parts, tubes, property taxes and interest costs all without investment. G. E. feels this will place x-ray within the reach of a vastly greater number of industrial firms and laboratories.

1 1 1

STAR MANUFACTURING EXPANDS BIN AND SHELVING PRODUCTION

The Star Manufacturing Company, steel fabricators, has production lines moving in its new factory at Turner, Kan. The company, which has been expanding its manufacturing and wholesale operations in Oklahoma, Texas, Colorado and now Kansas, announced around the first of the year it would move this major fabricating activity from Amarillo, Texas. Company officials explained that the move was made to provide a more central location for national distribution.

Star is concentrating its production at this time on steel industrial bins and shelving under the trade name Starbilt. Other new products are on the drawing board, however, which will expand the line of steel products fabricated in the new Kansas plant. Some new items are expected to make their appearance within the next few months, according to Star officials.



Faster **than grinding**



FIBREX[®] RED WHEELS

TRADE MARK

Where speed counts on the job, Fibrex Red Wheels are your answer. Tough — fast-cutting — durable — they head right into the work and actually cut away excess metal, faster by far than grinding it down. And, using the same Fibrex Red Wheel you can follow through immediately with your smoothing and finishing-up operations.

Try these sensational new abrasive tools. In straight wheels for cutting off brass, bronze, copper tubing and aluminum . . . depressed center wheels for cleaning up ragged surfaces and grinding welds especially on stainless steel. Send now for free Bulletin ESA 186.

For portable disc sanders
and right angle type
portable grinders

For cut-off machines
saw tables portable grinders

SIMONDS ABRASIVE COMPANY, PHILADELPHIA 37, PA. DISTRIBUTORS IN PRINCIPAL CITIES

Member of Grinding Wheel Institute

DIVISION OF SIMONDS SAW AND STEEL CO., FITCHBURG, MASS. OTHER SIMONDS COMPANIES: SIMONDS STEEL MILLS, LOCKPORT, N.Y., SIMONDS CANADA SAW CO., LTD., MONTREAL, QUE. AND SIMONDS CANADA ABRASIVE CO., LTD., ARVIDA, QUE.

NO TIME LOST "WONDERING" HOW TO USE THIS EXTINGUISHER!



The first 10 to 30 seconds can mean the difference between *no loss* and *complete destruction* when fire starts. That's why Randolph's simple, *obvious* operation is so important in stopping fires *before* they spread!

Anybody can get a Randolph into action **FAST!** No valves to turn, no nozzles to adjust; just point and press your thumb! Randolph's snowy CO₂ is non-damaging, evaporates without a trace. It's non-toxic, won't conduct electricity, deteriorate or freeze.

UNDERWRITERS' APPROVED

Learn how Randolph gives your plant better *preventive* fire protection! Write Randolph Laboratories, Inc., 1 East Kinzie St., Chicago, 11, Illinois.

Randolph
FIRE PROTECTION EQUIPMENT

AMERICAN SCREW COMPANY NOW IN NEW CONNECTICUT PLANT

American Screw Company has moved all administrative, engineering, production, purchasing, sales and research functions and personnel to a new, one-floor plant in Willimantic, Conn. The migration began three years ago when the company, which had done business in Providence, R. I., for 112 years, was unable to find a suitable site for a new plant there.



Part of American's thread rolling department

With the move now complete production is moving steadily upward in all types of American Phillips and slotted fasteners, according to company officials. Modern machines have been installed throughout the plant, and handling methods have been designed for top speed, from the unloading dock at finished wire storage, all the way to the shipping department. The one-floor feature of the main production area makes possible the most efficient straight-line production and eliminates costly and old-fashioned handling operations between floors and buildings, American points out.

1 1 1

SEE LINSEED OIL IN SHORT SUPPLY DURING SUMMER

It appears that commercial supplies of linseed oil may be insufficient to meet requirements of consumers during the summer months.

The Texas flax crop now coming to market is off about 36% in acreage from last year. The weather has been bad and it is believed that the total crop to come to market is also expected to be off about 50% from last year. The Northwest crop will be delayed by late seeding and may suffer injury from early frosts. The processors report that they are short of flax and will have to shut their mills down before the Northwest crop comes to market.

The Commodity Credit Corporation announced on May 1 that it has for sale 450 million pounds of linseed oil and 13 million bushels of flaxseed. The domestic linseed oil prices established for the month of May are 17.7¢ per pound, tankcars, at Minneapolis and Chicago; 18.0¢ at Buffalo, San Francisco and Los Angeles; 18.3¢ at New York, Philadelphia, Baltimore and Portland, Ore.; and 18.4¢ at Houston and Kenedy, Tex., and Good Hope, La. Flaxseed is offered at \$4.29 per bushel, Minneapolis basis. The comparable export prices are 16.2¢ for linseed oil and \$4.00 for flaxseed.

(Please turn to page 358)

Steel Forgings.. **WHEN YOU BUY NATIONAL YOU GET ★ ★ ★ ★ ★**

★ **SERVICE**—Friendly Co-operation—a desire to serve you with the best we have.

★ **QUALITY**—Forgings metallurgically and physically of superior quality; a true measure of our success.

★ **IMAGINATION**—To tackle jobs "turned down" by others—to help our customers solve their metallurgical and machining problems.

★ **EXPERIENCE**—Over thirty-five years of steady progress and expansion.

★ **RESPONSIBILITY**—All in one place for Steel Making—Forging—Heat Treating—Machining.

★ **SATISFACTION**—Both to you and to us for a good product well made.

Send your blueprints to National Forge — Our good service starts with your inquiry



**Steel Makers • Forgesmiths
Heat Treaters • Machinists
Machinery & Testing Equipment
Manufacturers**

National Forge **AND ORDNANCE COMPANY**

Irvine, Warren County, Pennsylvania



JOHNSON BRONZE



**Made from
Pre-Alloyed
Bearing
Bronze Powder**

Ledaloyl actually means "lead alloy"... a powder metallurgy product that combines copper, tin and lead in the form of a pre-alloyed bearing bronze.

The introduction of lead as an integral part of the bronze powder provides conformability, aids lubrication, and prevents freezing to the shaft. Myriads of tiny, evenly spaced pores serve as miniature oil wells, metering oil to the shaft when in use, absorbing it when at rest. Therefore, you have adequate lubrication at all times.

Johnson Ledaloyl Bearings are die-molded to size, eliminating costly machining, and consequently, are very low in cost. This is an added cost-saving advantage in odd-shaped, flanged, and self-aligning designs, and in large quantities of a size. Johnson Bronze engineers are glad to assist you in determining whether you can use Ledaloyl Bearings to your advantage. Write today!



**Write for
FREE
Catalog on
Stock Sizes
of LEDALOYL**

Johnson Bronze
SLEEVE BEARING HEADQUARTERS
450 SOUTH MILL STREET • NEW CASTLE, PA.

(Continued from page 356)

The government support price for the new flax crop is \$2.82 per bushel, Minneapolis, but it is questionable if the market will go that low. There is little flaxseed available in Canada but there are considerable quantities in Argentina. These are presently excluded by import controls which expire June 30 under existing legislation, which, however, may be extended for another year or more.

—"Coatings", published by National Paint, Varnish and Lacquer Association.

1 1 1

NEW BOOK COVERS ALL PHASES OF MATERIALS HANDLING

A new book giving broad and comprehensive treatment of the subject of materials handling has been published by Lincoln Extension Institute, 1401 W. 75th St., Cleveland 2, O.

It is described as the first book to bring together in one volume the basic principles, practices, equipment and applications of materials handling heretofore obtainable in part only by reference to widely scattered sources often unavailable. Its prime objective is said to be to establish a basic philosophy for thinking and acting objectively in effecting savings of money, time and effort in the industrial handling processes by the application of the new analyses, equipment and procedures to existing needs.

The book, titled "Industrial Materials Handling", sells for \$4.75.

1 1 1

NEW PLASTICS GIVE MOLDERS 45-100% PRODUCTION INCREASE

A whole new class of phenolic plastics produced by Bakelite Division, Union Carbide and Carbon Corporation, 122 E. 42nd St., New York 17, N. Y., and designated as C-22 general-purpose phenolic molding materials are said to provide molders with production increases ranging from 45 per cent to more than 100 per cent. These new phenolics, with curing rates 15 to 45 per cent faster than those of phenolics previously regarded as fast-curing, also offer high gloss and excellent mold release, according to Bakelite.

The valuable economic advantages provided by these new phenolics include increased output of molded parts, reduced cure time, reduced total cycle time, reduced mold costs, and fewer mold cavities required for a given rate of production.

Three such materials, all suitable for compression and plunger molding in positive or semi-positive molds, are currently available: BM-18750 Black—A general-purpose non-bleedproof molding material offered in the flow range 50-120; BM-18752 Brown—A general-purpose bleedproof brown material offered in the flow range 50-130; BM-18751 Black—A general-purpose bleedproof material offered in the flow range 50-130. To determine various flow ranges, flow was taken at 700 pounds per square inch.

ESNA*Self-Locking***FASTENERS**

3011 ways to solve your Fastening Problems

When fastening problems come up, are you ready with an immediate answer? Or, do you find that many of your problems are major design jobs?

If fastening presents any problem at all, Elastic Stop Nuts can supply the answer fast. In stock, ready for delivery to you when you say the word, ESNA has 453 off-the-shelf answers to your problems. Tooled for production, ESNA has 2558 more.

Yes, 3011 types and sizes of Elastic Stop Nuts cover just about every fastening job you run into. And the self-locking action of the Red Elastic Collar is your guarantee of performance. For instance, when you want to pre-stress a bolt to assure proper load distribution; or if you must "set" and maintain an exact spring-loaded adjustment; the torque provided by the grip of the Red Elastic Collar on bolt threads, will do the job. When you've got to have a fastener with a locking hold that can't be shaken loose by the toughest mechanical or operating vibration, the answer is an Elastic Stop Nut. If you need a

fastener that will protect internal bolt threads against corrosion and assure easier repair jobs . . . the moisture seal and guarantee of reusability provided by the Red Elastic Collar means that your fastener is an Elastic Stop Nut.

Problems like yours are solved at ESNA day after day—and have been since 1927. In the railroad industry, in the oil fields, in automobiles, aircraft, and construction projects, reusable, precision-setting Elastic Stop Nuts are doing the kind of fastening job you're looking for.

If your problem is a common one, ESNA will supply one of the 3011 types of Elastic Stop Nuts immediately. If you need a special design, ESNA will make quick work of your problem by handling both design and manufacture. Why not get ready to handle that next fastening problem now? Send details of your problem, or write asking for a call from an ESNA engineer. For the new ESNA catalog, write Elastic Stop Nut Corporation of America, Union, N. J.



ELASTIC STOP NUTS



HIGH
TENSILE



ANCHOR



HIGH
TEMPERATURE



SPLINE



CLINCH

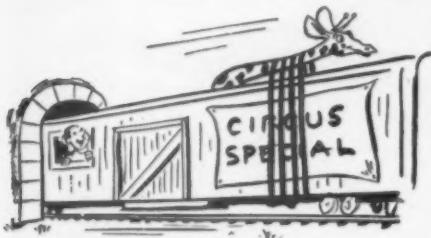
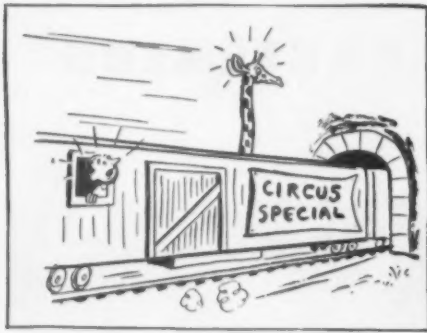


GANG
CHANNEL



NYLON
CAP

You can do a lot



with a little

GOLD SEAL TAPE

A roll of Gold Seal will always go further—there's no waste. It sticks to the job, *speeds* the job. Get Gold Seal Tape next time. Save time and money... make tighter, longer-lasting joints. Buy it by the carton (10 rolls) or in single rolls. Jenkins Bros. (Rubber Div.), 100 Park Ave., New York 16, N. Y.



JENKINS

Gold Seal Tape
FRICTION and RUBBER TAPES
MADE BY JENKINS BROS.
MAKERS OF FAMOUS JENKINS VALVES

PORTABLE HAND TORCH USES "THROW-AWAY" FUEL CAN

A new portable hand torch that can be instantly lighted with a match, burns with a clean, blue, hot flame and does away with all pouring, pumping characteristic of ordinary blow torches has been introduced by Pressure Products Corp., 140 N. Dearborn St., Chicago 2, Ill.



Called the "Prepo", the torch can be used on any maintenance job requiring the application of heat or a hot flame. Its fuel is supplied in a disposable can about the size of a beer can. The can is sealed and locked in place as a part of the torch until empty, when it is removed and thrown away. The fuel is a compound of hydrocarbons which is self-pressurizing and self-vaporizing. It is a non-toxic, non-poisonous low pressure fuel. After lighting, the flame achieves a maximum heat of more than 2200 degrees in 30 to 60 seconds.

The torch comes equipped with two easily changed burners. The large burner throws a long, broad flame for work where a lot of heat is required quickly. The other burner has a long pin-point flame which is ideal for soldering and for other work where heat must be concentrated in a small area.

♦ ♦ ♦

QM PURCHASE POLICY CHANGED TO ASSIST CONTRACTORS

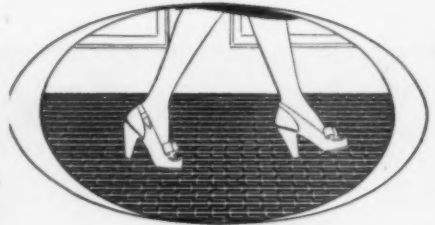
Future purchasing programs of the Quartermaster Corps for supplies other than food will be conducted so as to provide a minimum of 90 days between the awarding of a contract and initial delivery of materials supplied by contractors, the Department of the Army has announced.

Exceptions to this policy may be made in connection with purchases for special programs and in instances where requirements or other circumstances necessitate earlier delivery.

Considerable variation existed heretofore in the "lead time" between date of contract award and initial deliveries. By establishing a 90-day minimum, contractors will be assured of ample time to start deliveries.

The new procedure, directed by Major General Herman Foldman, The Quartermaster General, is expected to encourage greater participation of small business in Quartermaster procurement.

THE SAFE OPEN STEEL FLOORING IS **TRI-LOK**



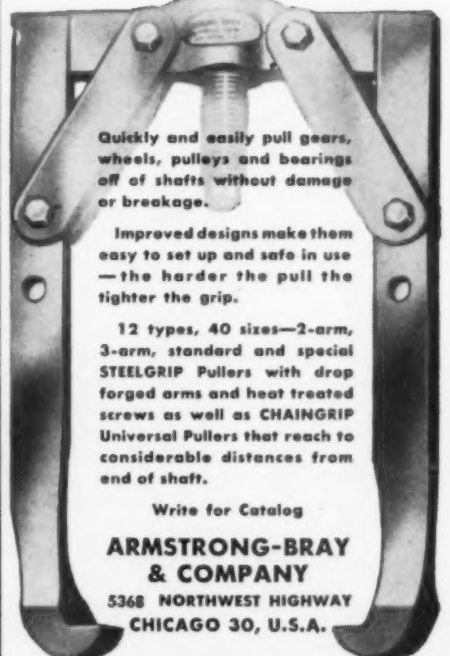
No object over 1/2 square inch can pass through super-safe U-Type Tri-Lok Flooring. Fabricated without bolts, rivets or welds, it is unsurpassed for plant installation, walkways, loading platforms. Efficient distribution of concentrated loads... maximum free opening for light and air. Write for Bulletin JV-1140.

DRAVO CORPORATION

National Distributor for the
Tri-Lok Company
Dravo Bldg., Pittsburgh 22, Pa.
Sales Representatives in
Principal Cities



ARMSTRONG-BRAY GEAR and WHEEL PULLERS



Quickly and easily pull gears, wheels, pulleys and bearings off of shafts without damage or breakage.

Improved designs make them easy to set up and safe in use—the harder the pull the tighter the grip.

12 types, 40 sizes—2-arm, 3-arm, standard and special STEELGRIP Pullers with drop forged arms and heat treated screws as well as CHAINGRIP Universal Pullers that reach to considerable distances from end of shaft.

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ARISTOLOY STEELS

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Part of Copperweld's 11,000 tons monthly thermal-treating capacity, these modern furnaces are used for annealing coils.

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SPECIALTY • NITRALLOY
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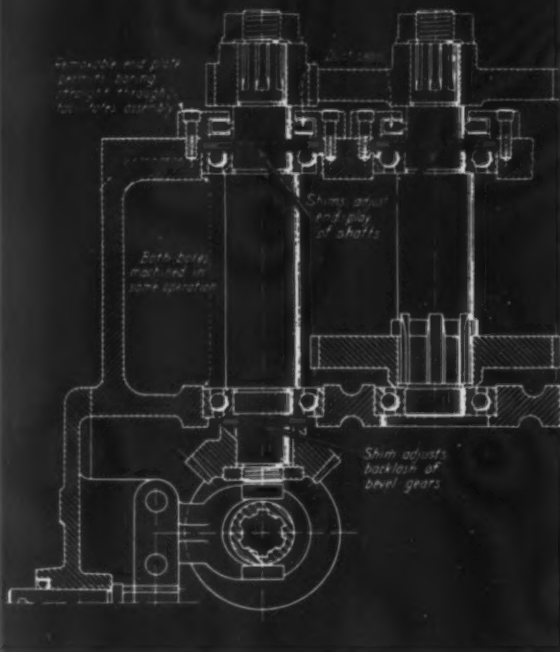
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Answer to GEAR MESH and END- PLAY problems



IF YOU'RE WASTING TIME AND TYING UP A STANDBY LATHE...

Laminated shims can stop the expensive process of assembly, testing, disassembly, machining a few thousandths, reassembly, retesting and so on for many costly hours.

DO WHAT THIS LEADING MACHINE TOOL MANUFACTURER DID...

In the milling machine above, bores for inner and outer bearings are machined to one diameter in one operation. Removable end-plate permits boring straight through outer bearing housing and makes assembly of shaft, bearing and dust seal much simpler. **SAVING:** hours of machining and assembly time.

AND SIMPLIFY YOUR ADJUSTMENTS BY USING LAMINATED SHIMS...

Backlash of bevel gear and end-play of the two shafts are adjusted right at the job by peeling .002" laminations off the shims—with a pen-knife. Shaft and end-plate dimensions are calculated for shim thickness of .052". Shims are stamped at our plant from standard .062" (1/16") LAMINUM stock. **RESULT:** cumulative machining tolerances of $-.010$ to $+.020$ " are possible.

Send today for our new data file with specifications, design factors and applications. Sample of **LAMINUM** included.



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Press capacity to 100 tons, 24 inches square, shallow draw. Special equipment and variety of dies can eliminate die-making for short runs. Wide stock of materials. Let us quote on your difficult jobs.

* **LAMINUM** (Reg. U. S. Pat. Off.) shims are solidly bonded units made up of .002 or .003 inch brass or steel laminations with a microscopic layer of metallic binder. Cut to your exact specifications.

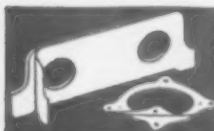
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THE SOLID SHIM THAT PUTS FOR ADJUSTMENT

LAMINATED SHIM COMPANY, Inc.

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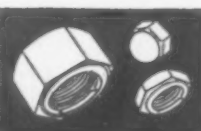
SHIMS



SHIM STOCK



STAMPINGS



AN-COR-LOX NUTS

G. E. MANUAL OF ELECTRIC INSTRUMENTS AVAILABLE

A new, revised edition of General Electric's "Manual of Electric Instruments" has been announced by the company's Meter and Instrument Divisions. It describes the fundamentals of construction and operating principles of all major types of electric instruments.

Prepared primarily for use in schools, the manual also is designed for men in industry who wish to gain familiarity with various types of electric instruments. Thirteen chapters explain the fundamentals of such instruments as thermocouples, synchroscopes, frequency meters, and electric telemeters.

The book is \$1.00 per copy, and may be obtained from the General Electric Company, Schenectady 5, N. Y.

1 1 1

THREE-SPEED MOTOR WITH BUILT-IN SPEED CONTROL



Three-speed motor with built-in speed control instead of an external choke coil is announced by Marco Industries, Inc., 1621 Terrace Blvd., Depew, N. Y. Quieter operation is assured, with a.c. hum greatly reduced. The new motor is named the "Tri-Motor", and is being manufactured in six, four and two-pole types, ranging from 1/40 to 1/8 hp.

1 1 1

CHECKLISTS OF MANAGEMENT PUBLICATIONS ISSUED BY AMA

The American Management Association has published four checklists of its recent publications in the field of personnel management and industrial relations, factory and office production, sales management, marketing and packaging, and office and financial management.

Each checklist is available from the American Management Association at 330 West 42nd Street, New York 18, N. Y., on request by executives in the particular fields covered. The checklists catalog more than 160 research studies, monographs and pamphlets, undertaken for AMA by over 700 management executives and specialists throughout American industry and business, and by specialists in the business schools of the nation.

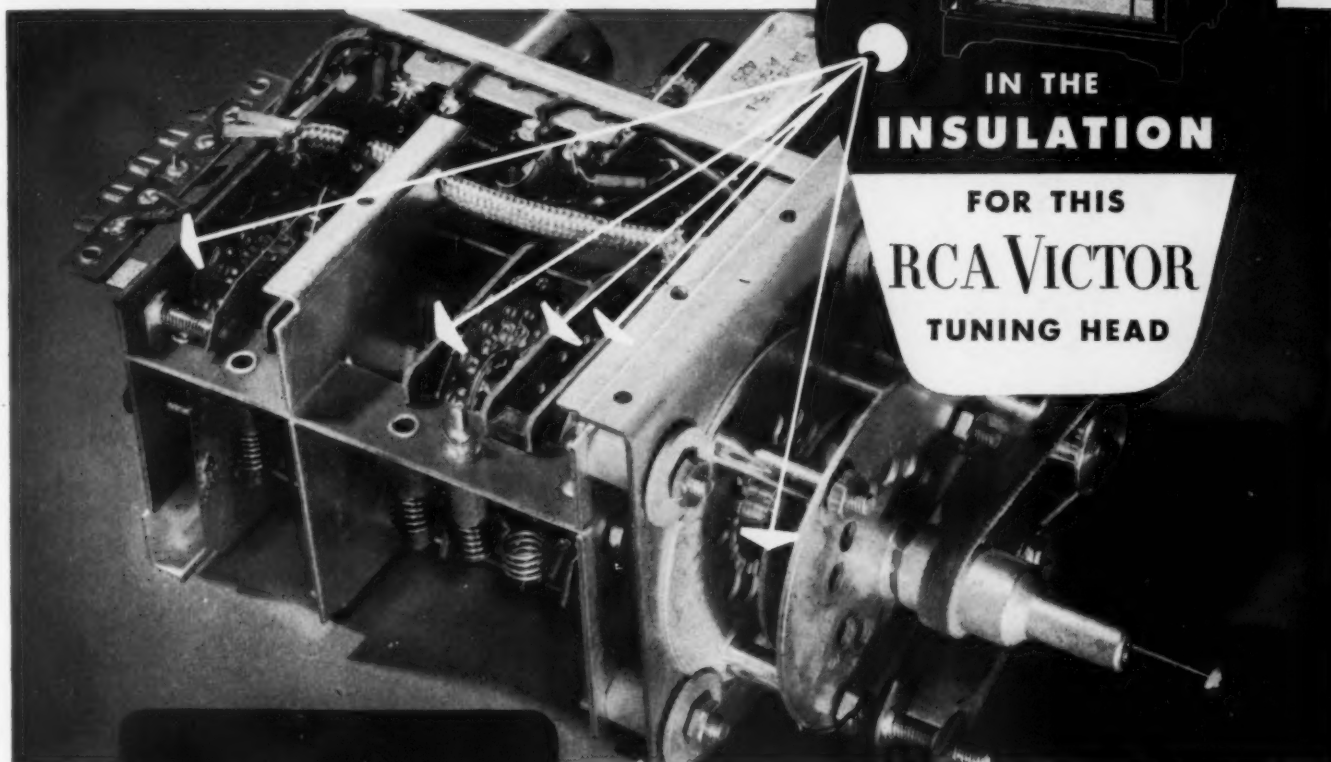
In the publications listed are explanations and analyses of operating techniques, procedures, policy determination, company case histories, and the management experience of leading organizations which have pioneered in their respective fields.

OAK MFG. CO. DEMANDS *UNIFORMITY*



IN THE
INSULATION

FOR THIS
RCA VICTOR
TUNING HEAD



INSUROK

DOES THE JOB!

3 POPULAR ELECTRICAL GRADES OF LAMINATED INSUROK

T-725

An outstanding paper-base laminate that can be hot-punched to intricate shapes. Has excellent electrical and physical properties, is stable under moisture and heat, and only slightly affected by sanding.

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Has unmatched electrical properties, yet punches with ease. It has a sensational ability to retain these properties in high humidity.

T-812

A further development in the electrical sheet field with insulation resistance on the order of T-800 and mechanical properties comparable to T-725.

In manufacturing components for this critical tuning head for RCA Victor television receivers, Oak Manufacturing Co. faced a tough insulation problem. The insulation had to be strong, yet produce clean, intricate, punched parts. It had to possess superior electrical properties—unchanged after sanding to close tolerances. And its electrical characteristics had to remain stable through a wide range of temperature and humidity.

INSUROK electrical sheets provide Oak with a unique combination of all of these desired properties. And even more important, from shipment to shipment, Oak engineers can depend on INSUROK's properties remaining uniform.

In hundreds of similar applications, laminated and molded INSUROK are solving difficult problems for industry. Richardson's years of experience in the engineering application of plastics is available to you without obligation. Write, today.

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NEW BRUNSWICK, N. J. • NEW YORK • PHILADELPHIA • ROCHESTER • ST. LOUIS

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IDENTIFICATION RING



This drop-forged ring is permanently attached to each ACCO Registered SLING CHAIN. All essential identifying information shown on both sides of ring, as illustrated, protected by the outer flange.

ACCO Registered SLING CHAIN

SEND for this catalog which contains information on how to select, use and care for sling chains. It is DH-80.



● The right sling chain for the job is the safe one. The wrong sling chain might be a hazard—to men, materials and equipment.

In ACCO Registered SLING CHAINS, you have a selection of types, sizes and materials to best meet the needs of any application—plus the assurance that every sling that carries the Identification Ring has been fully tested and rigidly inspected.

AMERICAN CHAIN—"The Nation's Chainmaker"—feels the responsibility of positively identifying every sling chain that leaves the plant.

ACCO

York, Pa., Chicago, Denver, Detroit, Los Angeles, New York, Philadelphia,

Pittsburgh, Portland, San Francisco, Bridgeport, Conn.

**AMERICAN CHAIN DIVISION
AMERICAN CHAIN & CABLE**

In Business for Your Safety

G. E. ANNOUNCES NEW TRI-CLAD BRAKE-MOTOR

General Electric is now offering its line of Tri-Clad motors equipped with Stearns magnetic brakes as unit apparatus, it was announced recently by the company's Small and Medium Motor Division.

All types of Tri-Clad motors up to 20 hp, 90 lb.-ft. static torque are available with the explosion-proof, electrically operated brake, a product of the Stearns Magnetic Manufacturing Company, Milwaukee.



The new compact brake-motor retains all the features of the standard Tri-Clad construction, it was said, and is for application on cranes, hoists, conveyors, machine tools, printing presses, laundry machines, etc. G. E. assumes unit responsibility for both brake and motor.

For flexibility, brake combinations are selected to operate at 100% and 150% of full-load motor torque. A single adjustment nut sets the torque for specific load conditions, thus enabling operation below maximum rated torque whenever possible to conserve brake linings and lengthen brake life.

1 1 1

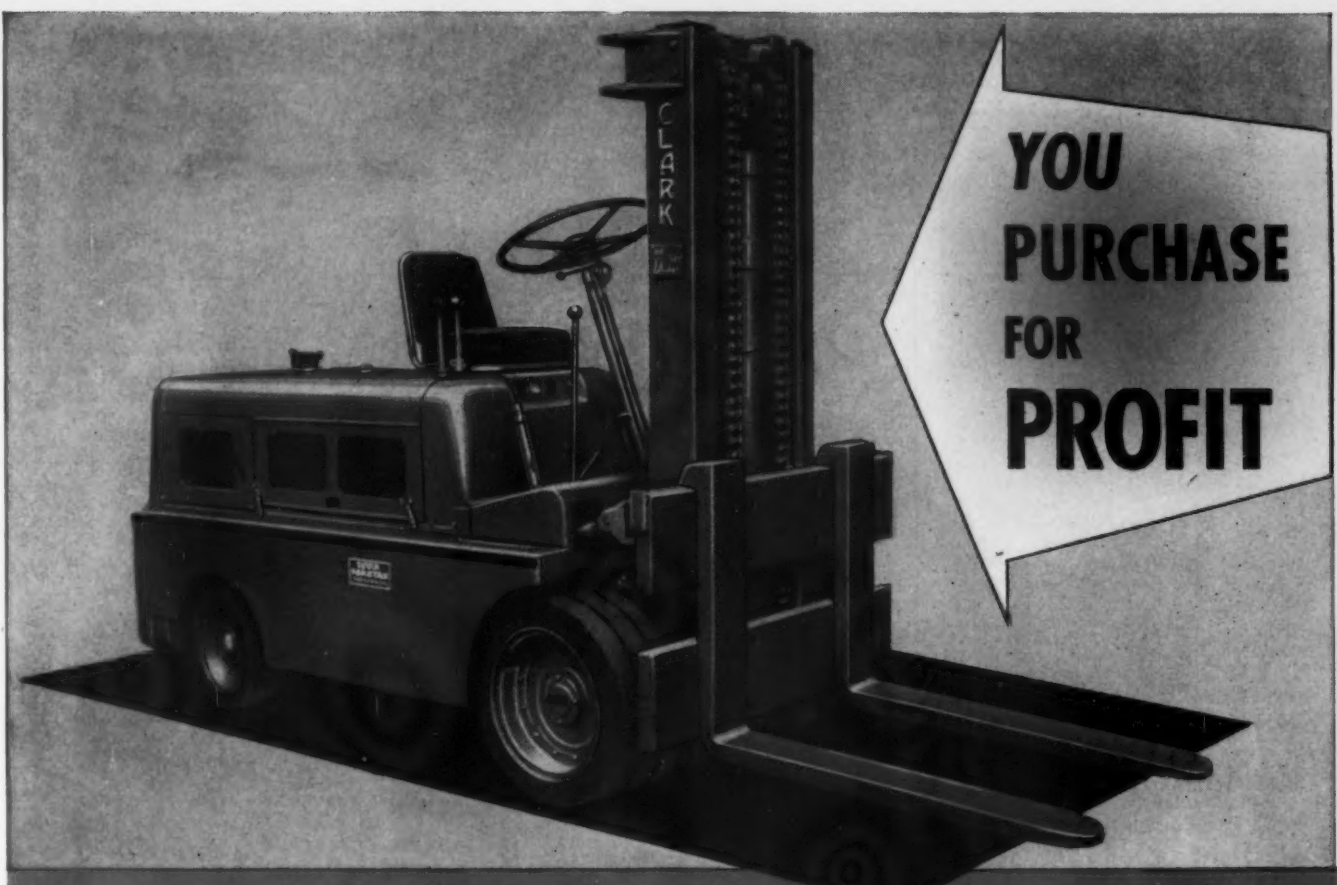
NEW "WATERPROOF" FABRIC "BREATHES" OFF WATER VAPOR

Production of a waterproof fabric which actually "breathes" off water vapor, thus eliminating the excessive sweating and resultant chilling experienced in conventional waterproof materials, has been announced by The Goodyear Tire & Rubber Company, Akron, O. Potential uses for the fabric, which is known as Vapotex, are rainwear, sports jackets, industrial coveralls, aprons and utility garments, hospital sheeting, hunting coats, snow suits and the like, in which heat buildup and perspiration are excessive when present waterproof materials are used.

Vapotex is described as being a textile, preferably cotton, coated on one or both sides with a specially developed coating compound containing an oil resistant synthetic rubber. Nylon and rayon may be coated with excellent results, too, it is said.

The trick of having the material shed water and at the same time pass off water vapor is accomplished by making the coated textile microporous, with as high as 2½ million holes per square inch—so tiny that the surface tension of the water falling upon the material prohibits the liquid from passing through.

(Please turn to page 366)



**YOU
PURCHASE
FOR
PROFIT**

WHEN YOU PURCHASE FROM CLARK

EACH DOLLAR THAT YOU PAY for Clark fork-lift trucks and towing tractors is a sound investment in:

TOP QUALITY—Our one objective is to give you the best your money can buy

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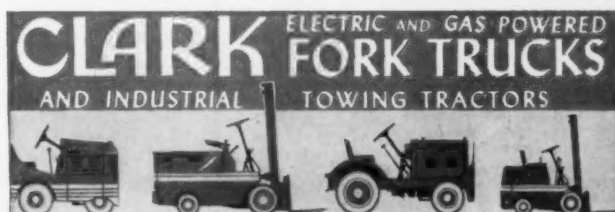
TOP SERVICE—ability to stand up under continuous hard usage

TOP ENGINEERING—based on 34 years of constructive service to Automotive Transportation

The inevitable results of these advantages are **BOTTOM COST** of operation and maintenance, **BOTTOM COST** of handling materials.

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**a saving in price
can add to your
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any but the best
of fasteners!**

The price of a good fastener is low—in terms of final product cost.

But the final cost of an ordinary fastener can be many times its price—in terms of high assembly cost.

So we think it's reasonable to say—"You may buy a cheaper fastener than a Scovill—but you'll never find one that costs less!"

**Scovill Makes
Good Fasteners**



Industrial Fastener Sales, Waterville Division
Scovill Manufacturing Co., Waterville 14, Conn.
New York • Detroit • Wheaton, Ill.
Los Angeles • Cleveland • San Francisco

(Continued from page 364)

At the same time these pores are sufficiently large to transmit readily the vapors given off by the body. This vapor, when held within a conventional waterproof garment, results in a concentration of body heat, excessive sweating and consequent chilling.

A small addition of wax in the rubber compound adds to the water repellent qualities, causing droplets of water to bunch up, much like the liquid does when spilled on an oil or gas moistened platform or floor.

✦ ✦ ✦

AIR POWER CONVERTS HAND MILLER TO AUTOMATIC TOOL

How the application of "Controlled-Air-Power" to a hand miller can convert the machine to automatic operation with excellent results in increasing production and cutting costs is illustrated in two case histories recently reported.

One firm found that the cost of deburring the end and milling the shoulder of a dial shaft in two operations was too expensive, yet the production run did not warrant the purchase of automatic machines. By building, in its own tool room, a special purpose machine—using two Bellows Air Motors in conjunction with a Rouse Hand Miller—the company was able to boost production considerably, cut down operator fatigue, and reduce part cost by 31%. The Air Motors are made by the Bellows Company Akron, O. The Hand Miller is made by H. B. Rouse & Co., Chicago, Ill.

Another company, manufacturing electric erasers, had a problem in the manufacture of slotted heads for the item. Experienced operators could produce at the rate of 40 pieces an hour, hand indexing and milling, but the pace was too great. Also, the milling cutters were wearing unevenly and too fast with hand operation. By combining standard Bellows "controlled air" devices with the Rouse Hand Miller, the company was able to eliminate all hand operations except loading and pulling the starting button. Production is now reported at 80 per hour, with operator fatigue negligible.

✦ ✦ ✦

EXTRA-LARGE STORAGE CABINET HOLDS UP TO 1000 POUNDS

Steel storage cabinet 78 1/4" high and 36" wide, in either 18" or 24" deep models, is announced by the Penn Metal Corporation of Penna., 50 Oregon Avenue, Philadelphia 48, Pa. When the four shelves are spaced equally, it is possible to store objects up to 14" high on each shelf. The large shelf area, plus heavy gauge steel construction permits the safe storage of materials weighing up to 1000 pounds in the 24" deep model, it is said. The cabinet has a smooth exterior with concealed hinges and no projecting bolt heads. Stock finish is office green baked enamel, with gray and brown also available. The double doors have three-point latching with grooved key lock.



AUTO PRINTER

**Eliminates Hand Stenciling
Pays for Itself Quickly**

● PRINTS on any or all surfaces of flat cartons, multi-wall bags, or wooden shooks, adjusting to the size and thickness of container.

● MARKS supplemental information, 2,400 impressions hourly.

● FEEDS containers to rollers automatically.

● REQUIRES minimum of care and set-up. Built for years of trouble-free service.

● MACHINES for marking loaded containers also available.

● Sizes to imprint shipping containers of all dimensions.

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INDUSTRIAL MARKING EQUIPMENT COMPANY

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HALLOWELL Solid Steel Collars, functionally proportioned throughout . . . precision-machined so faces run perfectly true . . . are beautifully polished all over . . . yet they cost less than common cast iron collars. 3" bore and smaller are made from Solid Bar Stock. To make sure the collar won't shift on the shaft they are fitted with the famous UNBRAKO Knurled Point Self-Locking Socket Set Screw — the set screw that won't shake loose when once tightened. HALLOWELL . . . a "buy word" in shaft collars . . . available in a full range of sizes for IMMEDIATE DELIVERY.

Write for name and address of your nearest HALLOWELL and UNBRAKO Industrial Distributors.

OVER 47 YEARS IN BUSINESS

STANDARD PRESSED STEEL CO.

JENKINTOWN 31, PENNSYLVANIA

Why top P.A.s double in engineering

WHEN you buy component parts for your product do you ever stop to ask yourself about the engineering service that goes along with these parts? If you do, you'll be making yourself doubly valuable to your company.

Extra engineering service is a big reason why so many P.A.s consistently choose Timken® tapered roller bearings. Sales engineers of the Timken Company and a team of engineers at Timken's home office work closely with customers to work out better bearing applications.

These engineers suggest ways in which bearings can be used more economically. They often help improve the design of mountings and related parts. They provide your own engineering staff with technical helps like the Timken engineering journal which contains 529 pages of drawings, specifications, and other data.

Engineering service like this greatly increases the *value* of the parts you buy. Along with quality and widespread public acceptance, it is one of the important factors to weigh when buying bearings. And to help you weigh these factors, you may wish to keep in mind this simple formula:

$$\text{VALUE} = \frac{\text{QUALITY} + \text{SERVICE} + \text{PUBLIC ACCEPTANCE}}{\text{PRICE}}$$

Since Timken tapered roller bearings give you more quality, service and public acceptance than any other bearing—and at a price which passes on to you every new economy in manufacture—you're sure of top *value* when you buy Timken bearings.

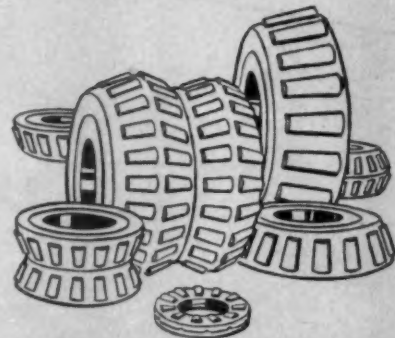
TIMKEN
TRADE-MARK REG. U. S. PAT. OFF.
TAPERED ROLLER BEARINGS



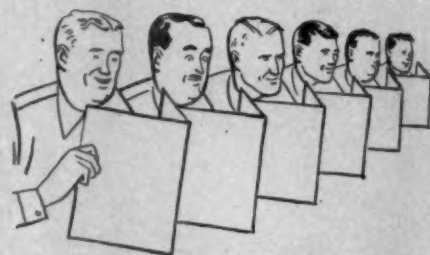
P. A. Notes:



40-SECOND TEST. To insure bearing quality, Timken has long made its own steel. And that steel is now better than ever. With a new direct-reading spectrometer—first in the steel industry—Timken can analyze a heat of steel in 40 seconds, permitting greater control over steel quality.

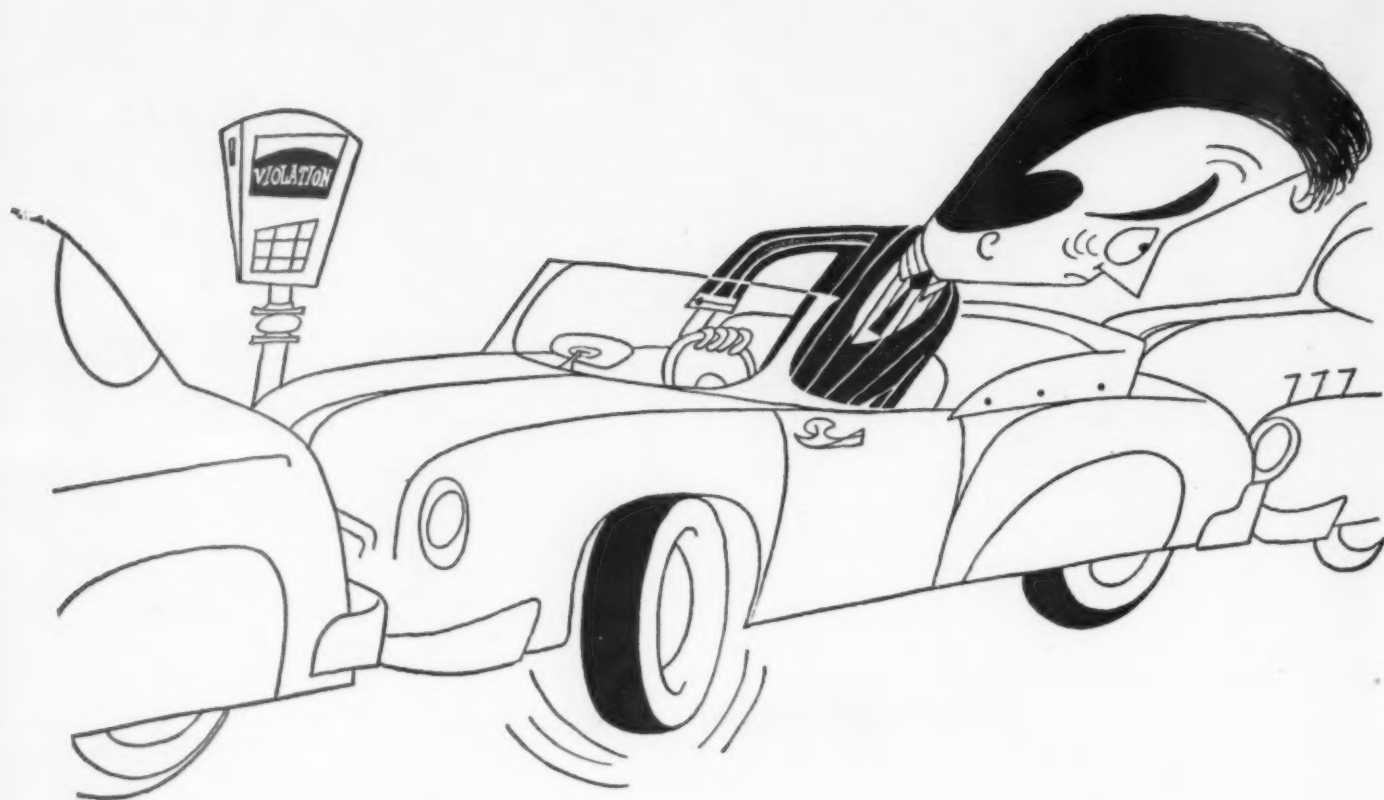


5850 SIZES. No matter how many types and sizes of tapered roller bearings you need, you can get them all from Timken—one dependable source. The Timken Engineering Journal lists 5850 sizes—26 different types.



AD AID. Your company's product has a sales advantage when it's equipped with Timken bearings. This year Timken will make 669,450,630 reader impressions with its advertising. By building acceptance for Timken bearings—it helps sell products in which Timken bearings are used.

NOT JUST A BALL NOT JUST A ROLLER THE TIMKEN TAPERED ROLLER BEARING TAKES RADIAL AND THRUST LOADS OR ANY COMBINATION



up against it?

When schedules are tight and time is too short for a mill shipment take advantage of Crucible's 23 warehouses and pools . . . completely stocked to meet your requirements. If you're out of stock, or don't need a mill-sized shipment, Crucible's immediate delivery makes your inventory planning easy.

Let Crucible be your warehouse. Come in to the Crucible warehouse near you. See for yourself the complete stocks, and how well prepared we are to serve you. Be sure to make full use of Crucible's metallurgical service which is freely available to you. CRUCIBLE STEEL COMPANY OF AMERICA, Chrysler Building, New York 17, New York.

*Complete stocks maintained of
Rex High Speed Steel . . . AISI Alloy, Machinery, Onyx Spring
and Special Purpose Steels . . . ALL grades of Tool Steel (in-
cluding Die Casting and Plastic Die Steel, Drill Rod, Tool Bits
and Hollow Drill Steel) . . . Stainless Steel (Sheets, Bars, Wire,
Billets, Electrodes)*

CRUCIBLE

first name in special purpose steels

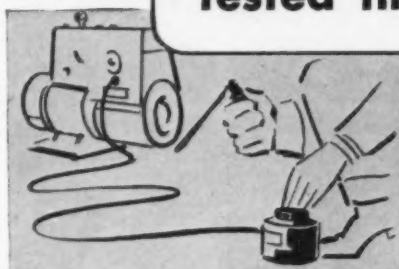
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PROVIDENCE • ROCKFORD • SAN FRANCISCO • SEATTLE • SPRINGFIELD, MASS. • ST. LOUIS • SYRACUSE • TORONTO, ONT. • WASHINGTON, D. C.

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gives you

the only DC Arc Welder with all these tested time- and money-saving features

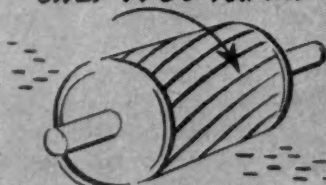


BUILT-IN REMOTE CONTROL Dial-lectric feature gives full arc-control at the work . . . saves operator's time . . . saves floor space for production.

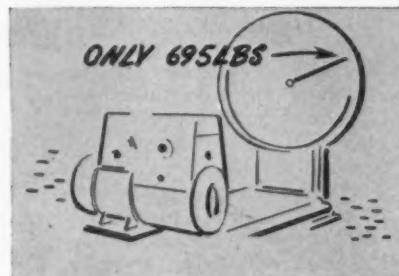


**P&H Model
WFA-300
Welding Service Range
60-375 amps
(NEMA-Rated)**

ONLY 1750 R.P.M

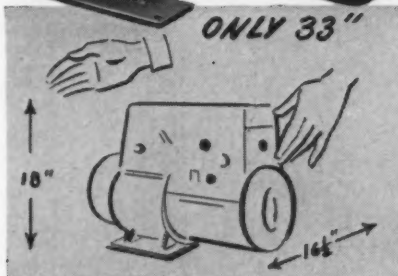


SLOW SPEED Lowest rpm per pound of weight. Only 1750 rpm for less wear, longer life, and minimum replacement costs. So quiet you hardly hear it.



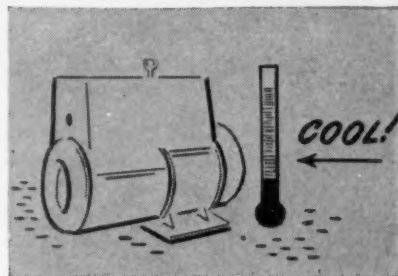
ONLY 695 LBS

LIGHT WEIGHT Easy to handle and move. Facilitates mounting off the floor and out of the way so there's more room for turning large weldments. Weighs only 695 lbs.



ONLY 33"

STURDY AND COMPACT Four sets of main brushes and one auxiliary set firmly fastened for good commutation. Simple design and rigid construction throughout . . . space-saving dimensions.



COOL!

COOL OPERATION Slow speed plus extra large stator-frame cooling surfaces, and dual fans (for generator and motor) — make this the coolest welder you have ever seen.

● Stationary or portable mountings—Additional Features: single heat control; life-time sealed bearings; push-button start- and -stop switch with overload protection; high-low range switch; and polarity reversing switch. Get all the facts. Call your P&H representative, or send in coupon.



Uniform,
top-quality
electrodes for
every job!

TEAR OUT COUPON AND MAIL TODAY!

HARNISCHFEGER CORPORATION, Welding Division
4577 W. National Ave., Milwaukee 14, Wisconsin

2117

Please send me Bulletin W-80 giving full details about the outstanding new P&H WFA-300 DC arc welding machine.

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Company..... Title.....

Address..... Home ☐ Business ☐

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An Anchor Chain Link Fence is the best way to shut out snoopers, trespassers, agitators, troublemakers. What's more, it will control traffic in and out of your plant, as well as protect outdoor storage of materials and supplies.

You really get *long-lasting* protection with Anchor Fence! H-Beam Line Posts are self-draining, rust-free, rigid. Deep-Driven Anchors hold the fence firmly erect and in line. Square Frame Gates are amazingly free from warping and sagging. Square Terminal Posts provide extra strength and durability.

Call a trained Anchor Fence engineer to discuss your needs or write for our catalog to: ANCHOR POST FENCE DIV., Anchor Post Products, Inc., 6615 Eastern Ave., Baltimore 24, Maryland

Anchor Fence
Nation-wide Sales and Erecting Service

GENERAL ELECTRIC ANNOUNCES QUALITY CONTROL INDICATOR TO LOWER REJECTS, CUT COSTS

General Electric engineers recently unveiled a new device which they say can be instrumental in assuring the highest possible quality of most mass-produced items, and reduce manufacturing costs at the same time.

The instrument is an electric computer, called the "quality control indicator". It keeps automatic, continuous check on reject rates in manufacturing operations, and makes possible the location and remedy of abnormal production difficulties as soon as they occur.



Machine keeps continuous check on reject rates. Box on top is model, production line for demonstration purpose.

Statistical analysis of production and rejection rates in the past has been made by time-consuming computations, lagging behind production by hours or days, G. E. engineers explained. During such a lag, it is possible for an abnormally high rejection rate to go undetected, they said. Although eventually caught, these defective parts in the meantime create manufacturing losses and slow production. Under the new system, the rejection statistics are available instantaneously and automatically, and supervisors know where to start looking at once.

Essentially a calculating machine, the new instrument counts the number of items produced and the number rejected, and indicates on a meter whether the percentage of rejections is above or below an acceptable level at any given instant.

Reject Rate Cut 60%

In a trial installation in the company's refrigerator assembly lines at Erie, Pa., the reject rate on parts controlled by the indicator was cut more than 60%, G. E. stated. On a compressor assembly line, this rate dropped from an average 2.7% for a check of five characteristics to .89% in six months in one pilot installation.

In practice, the indicator uses various signalling devices, such as an "electric eye" or a switch tripped by passing objects, to count the number of articles produced. Every time an inspector rejects a unit, he pushes a button, and this causes a change of reading on the indicating meter. When the reject level at an inspection station exceeds a pre-

(Please turn to page 372)

Stock No. 1621 Brown bal oxford with flexible, single oak leather sole, half rubber heel with leather base, leather counter, green Nado lined vamp.

WIDTHS SIZES
A and B . . . 7 to 12
C, D, E . . . 5 to 12

Write today for complete Lehigh Catalog No. 15A showing 44 other styles of steel toe safety shoes and boots.



new!
Lehigh
"safti-vents"
keep
feet
cool

—and it has Lehigh's
exclusive "sock-saver"
leather toe lining!

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Ends tearing socks.
Feels more comfortable.

Another Lehigh "first" . . . the cool, Summer comfort of airy, ventilated shoes, now with Lehigh's Lockrim** steel toe protection built in! Millions of men wear these breezy styles in regular shoes all through the hot months. Now they can buy ONE pair to wear inside the plant and out. Just display a sample pair. This is the kind of safety shoe your men want!

* T. M. REG. APP. FOR

** T. M. REG.

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Division of the
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CORPORATION

**SAFETY SHOE COMPANY
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No hold-up for down-time

Every Towmotor is designed for the job... and stays on the job, because each part is engineered for a practical industrial purpose. Compare Towmotor with any other fork lift truck and you will see why Towmotor's trouble-free features make every Mass Handling job easier, faster, safer. Write for a copy of "Handling Materials Illustrated." Towmotor Corporation, Division 11, 1226 E. 152nd St., Cleveland 10, Ohio, U. S. A.



FORK LIFT TRUCKS and TRACTORS

RECEIVING • PROCESSING • STORAGE • DISTRIBUTION



every handling job
is easier with
TOWMOTOR MH!

(Continued from page 370)

determined rate, the needle on the meter moves from the green half of the scale to the red half, indicating to supervisors that corrective action is needed.

It may be used on any production line, wherever continuous inspection and testing are required. It can be applied to manufacturing operations where inspection is performed by automatic as well as manual methods. No additional production or supervisory personnel are needed to operate the equipment. The basic equipment consists of two units, a totalizer which counts the units inspected and a characteristic analyzer which counts the rejects for a given characteristic checked by inspectors. The quality meter, showing whether rejections are above or below a pre-determined level, is mounted on the front panel of the characteristic analyzer.

The indicator is being marketed by the company's Special Products Division in Schenectady, N. Y.

1 1 1

BUREAU OF STANDARDS ADOPTS WOOD PRESERVATIVE STANDARD

Commercial Standard, CS165-50, Zinc Naphthenate Wood Preservative (spray, brush, dip application) may be considered effective from April 22, 1950, according to the National Bureau of Standards. As soon as printed edition of the standard is available, copies will be mailed to all acceptors of record and to other interested organizations on request. At that time, copies may also be purchased from the Superintendent of Documents, Washington, D. C. Until the printed edition is issued, the mimeographed Recommended Commercial Standard, TS-4859, may be used.

1 1 1

COMMERCE DEPT. OFFERS "SHOPMEN'S LIBRARY"

A miniature "shopmen's library" for the factory or metal-working plant is being offered to the public by the Office of Technical Services of the U. S. Department of Commerce.

Such fields as grinding, milling, spinning, honing, and tapping; soldering, brazing and welding; working with plastics and alloys; plating and finishing; care and maintenance of equipment; are encompassed in a collection of 54 technical bulletins originally prepared for National Defense Department shops.

Papers currently available cover the machining of aluminum alloys, tapered workpieces, corrosion, dust control, types and uses of cemented carbide cutting tools, lubrication of machine tools, increasing utilization of shapers, and modern applications of the oxyacetylene torch.

Additional titles completing the series of 54 will be printed in accordance with demand.

A combined order blank and reservation form is available on request. Write for "Industrial Notes Circular" to the Office of Technical Service, U. S. Department of Commerce, Washington 25, D. C.

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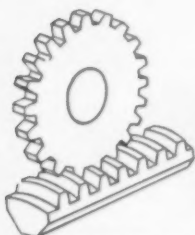
NEW PRINCIPLE CHECKS GEARS AT MACHINE SIDE

with more ease and accuracy

The Kodak Backlash Gage is a machine-side application of the Kodak Conju-Gage principle, a time- and money-saving method for passing every good gear, rejecting every wrong gear.

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NEW AND REVISED MACHINE TOOL STANDARDS ANNOUNCED

The American Standards Association announces the approval of two new and two revised American Standards for machine tools covering punch and die sets for two-post, punch press tools; involute serrations; single-point tools and tool posts; and twist drills, straight shank and taper shank.

They are part of a series of American Standards for small tools and machine tool elements which have been developed by a technical committee organized under the procedure of American Standards Association, and sponsored by the American Society of Mechanical Engineers; Society of Automotive Engineers; National Machine Tool Builders' Association; and the Metal Cutting Tool Institute.

These American Standards are being published by the American Society of Mechanical Engineers and when available may be obtained from the ASME, 29 West 39 Street, New York 18, N. Y., or from the American Standards Association, 70 East 45 Street, New York 17, N. Y.

♦ ♦ ♦

CHINESE HOG BRISTLES GOING TO RUSSIA, THEN TO U. S.

Exports of hog bristles from China to the United States have dropped sharply since Communist control of this industry on the Chinese mainland, while shipments of Chinese bristles from Russia to the U. S. show substantial increases. This change in the traditional trade flow of these bristles, widely used in industry, is reported by the Office of International Trade, U. S. Department of Commerce.

While there is apparently no embargo on exports of bristles from the Chinese mainland, information received by OIT indicates that substantial quantities of this important commodity are being sent to the U.S.S.R. for reexport to the U.S. and Europe. As a result of such action, China is losing an important source of U.S. dollar exchange, OIT said.

♦ ♦ ♦

SYNTHANE CORP. EQUIPS TO PRODUCE HUGE TUBES

New tube-winding equipment placed in operation by Synthane Corporation of Oaks, Pa., laminator and fabricator of thermosetting plastics for industry, now permits production of tubes up to 26 inches OD, 25-3/4 inches ID. The winder accommodates a maximum tube length of 96 inches. With previous equipment, maximum OD available was 23 inches. Mandrel-pulling equipment also has been revised to handle the larger mandrels.

Installation of the new equipment reflects the demand for these big tubes by transformer manufacturers who require the insulation properties of laminated plastics, and by the textile industry which specifies these tubes to close dimensional tolerances, for non-sagging surfaces and resistance to moisture and chemicals.



Fuller Fiber Brooms Give You Three Times the Mileage

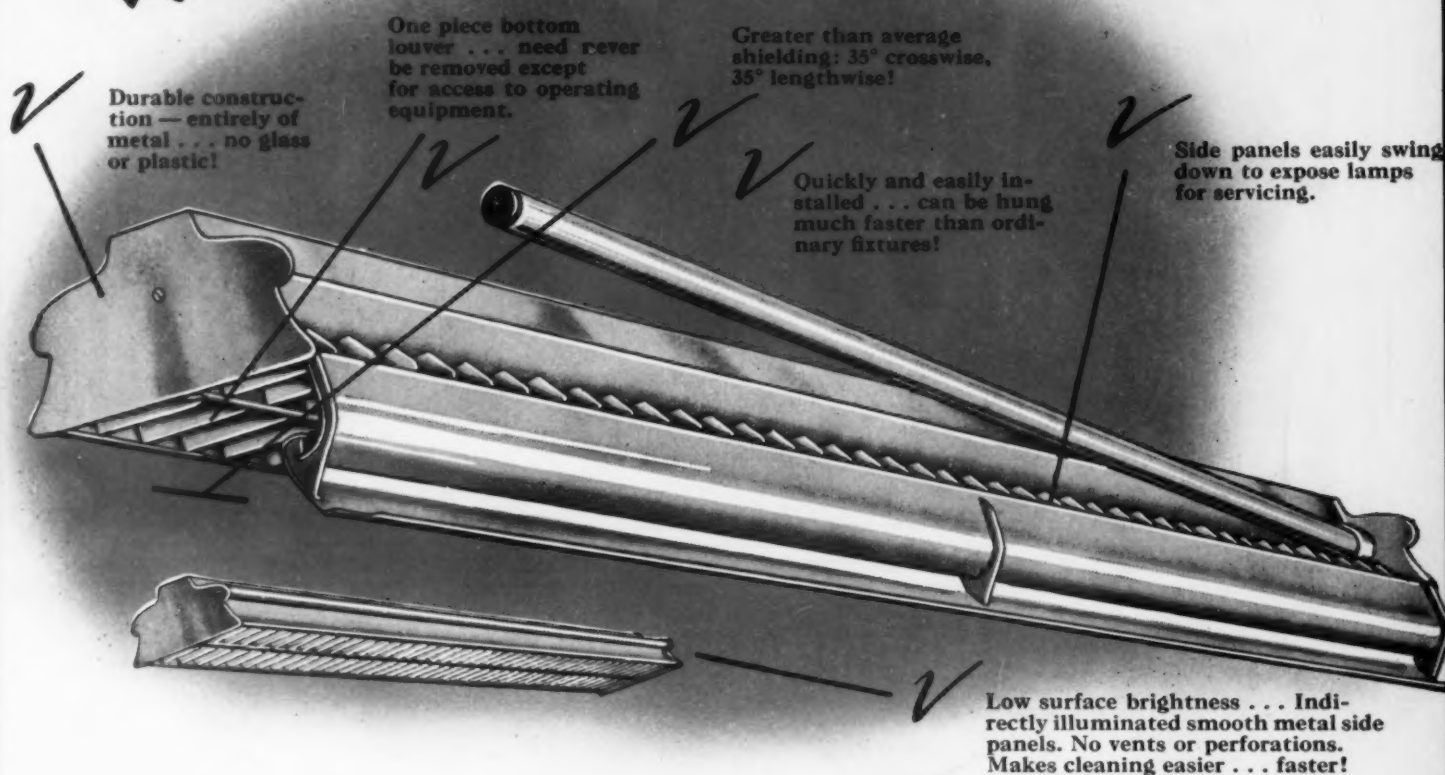
The true value of a broom is measured by much more than first cost alone. For example, a Fuller Fiber Broom outwears ordinary brooms 3 to 1. *You get three times the mileage.* We invite you to compare the wearing qualities of the Fuller Fiber Broom with any other broom under any sweeping conditions. We believe a test will convince you that, dollar for dollar, Fuller is your best buy. Prove it to yourself. Call your Fuller Industrial Representative today.



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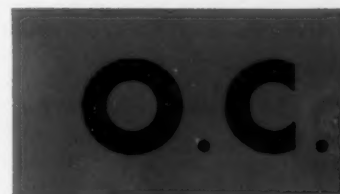


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Here it is — the perfect fixture for Commercial Lighting! This new Wheeler O. C. Slimline unit is the answer for illuminating Offices, Schoolrooms, Stores, Drafting Rooms, Hospitals and Public Buildings. Attractive, economical and efficient.

Made for use with two 75 watt, 96" T12 Slimline lamps and two 40 watt, 48" T12 single pin lamps. Write Wheeler Reflector Company, 275 Congress St., Boston 10, Mass. . . Also New York, N. Y. Representatives in principal cities.

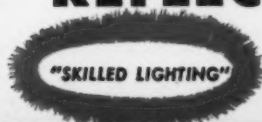


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Wheeler REFLECTORS

Distributed Exclusively
Through Electrical Wholesalers

MADE BY SPECIALISTS IN



EQUIPMENT SINCE 1881



PIERCE N. WELCH

(Fifth President of BRISTOL BRASS)

The man who dropped the Clock . . . who enlarged and refinanced the Bristol Mills . . . who saw Bristol Brass through the 1907 panic . . . and who spoon-fed the business by stimulating the demand for sales-premiums

THIRD of the Welch clan to become head of The Bristol Brass and Clock Co., new president Pierce immediately shortened the firm-style to The Bristol Brass Co., then completed the expansion program sparked by director Charles S. Treadway.

The seven years of Pierce Welch's presidency saw a mounting momentum in world events: Independence for Cuba and Panama, the Canal Treaty, world's first labor government (which lasted a few months) in Australia, Luther Burbank, the Sinn Feiners, T. R. out and Taft in, the North Pole dis-

covered and wireless telegraphy added to the wonders of the world, the Russo-Jap war and the first Russian revolt.

Meantime, Bristol rolled along in high gear, a lot more steadily than the new-fangled autos you began to see everywhere. And Bristol's spoon-shop, boomed by souvenirs of the battleship Maine, made Bristol's "World Brand" plated flatware a favorite premium of soap, cereal and flour merchants. Then copper tycoon Gus Heinze went to the wall, and the country went into a tailspin.

But the bread-and-butter products of the

Bristol mills . . . Brass sheet, rod and wire . . . pulled the company through as they have before and since. For word had been well-spread that Bristol gave you nothing but good Brass, and that you got it when they said you would. That much is still true. And it's also true that today Bristol makes Brass a lot better, makes far more of it, and has delivery, warehouse and distribution facilities that will give you, wherever you are (short of the Rockies) the alloy you want, when you want it.

One Hundred Years of BRASS made "BRISTOL FASHION"

Like the world-famed merchant ships from Bristol, England . . . Always prompt, shipshape, reliable

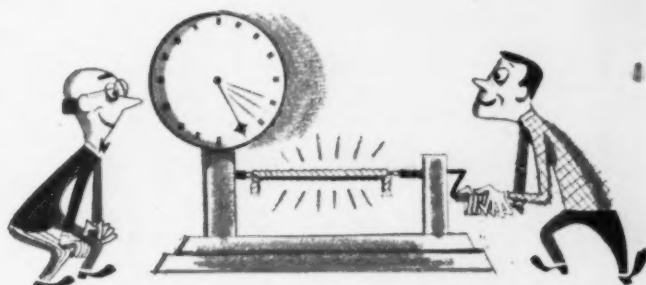
The BRISTOL BRASS CORPORATION, makers of Brass in Bristol, Conn. since 1850



From prehistoric times,
ramie fiber has been
known for its
greater strength...



Now... Johns-Manville
makes it into a packing
of greater strength



That's why **NAVALON** lasts longer than other cold-liquid packings



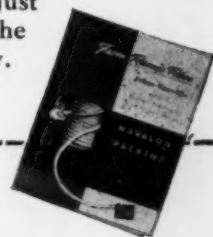
LONGER PACKING LIFE... less
down time... lower packing costs
... it's the same story wherever this
new Johns-Manville packing made
from ramie is being used in cold
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fibers. It has the long-lasting, rot-
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has been known for centuries. And
it is made by an exclusive Johns-
Manville process which imparts
unusual lubricating properties as
well—another reason why Navalon

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fresh and salt water, brine, cold oil
and many other liquids.

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that will stand up and take it when
other packings let you down, we
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further details about this new
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STEEL COMPETITION EXISTS BOTH IN SERVICE AND IN PRICE, SAYS OLDS

"I think competition in the steel industry is a very desirable thing," Irving S. Olds, Chairman of the Board of Directors, United States Steel Corporation, recently said in a panel discussion in Washington. "There is competition," he said, "and there is not only competition in price in the steel industry, there's competition in service, which is very important to the customers."

"Today, for instance, there are at least six companies in the industry whose base price for plates—which is a very important steel product—is higher than that of United States Steel. The highest one, I believe, is some \$17 a ton higher than our price for plates." Mr. Olds added that he knew of no one underselling United States Steel.

Mr. Olds also said that United States Steel was not the leader in making price changes. "Recently, there were a great many companies that changed their prices prior to our changing prices last December. Prices must be dependent upon costs. If the cost of labor goes up, an increase in steel prices is a natural consequence."

"Steel is a very small factor in the cost of most products that the average person uses," Mr. Olds said. "For instance, take a house that costs nine to ten thousand dollars. There is about three and one-half tons of steel in such a house."

"I think there has been a downward trend of prices in the steel industry . . . you have much better steels today than you had twenty or thirty years ago. You may compare the prices of steel today with twenty years ago, for instance. I don't know what the comparison would be—but the quality and the use that can be made of the sheet today is entirely different than those of twenty years ago."

Fears Price-Fixing Step

Questioned on Senator O'Mahoney's recent proposal that the steel industry post a thirty-day notice of proposed price increases, Mr. Olds said: "I think that that is a step directly toward the fixing of prices by the Government, which I believe is absolutely contrary to our system of private enterprise . . . I do not believe the steel industry takes on any of the characteristics of a public utility. I think when you have a public utility exercising what you might call a franchise, then there is some basis for saying that there is no competition—for some governmental body to regulate its charges. I think competition in the steel industry is a very desirable thing; I think you ought to have many companies actively competing."

Discussing the rate of profit, Mr. Olds said: "I think that our company or any company is entitled to a fair return based on the amount of business which it does. Now, while in 1949 our profits were large in dollars, they represented a return of only seven per cent on sales. On a volume

(Please turn to page 380)

CONTROLLED TENSION

...built into every lock washer by exclusive manufacturing process and precision heat treating.

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SPRING
LOCK WASHERS**

POSITIVE HOLDING POWER

... under all conditions is assured by torture-tests in Garrett's laboratories . . . performance-proof on all types of products.

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... with correct tension on bolt, nut and assembly parts prevents loosening, provides extra protection on every product.

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Garrett's line of lock washers, engineering service and quick deliveries . . . plus many other metal parts. Write for lock washer hand-book.

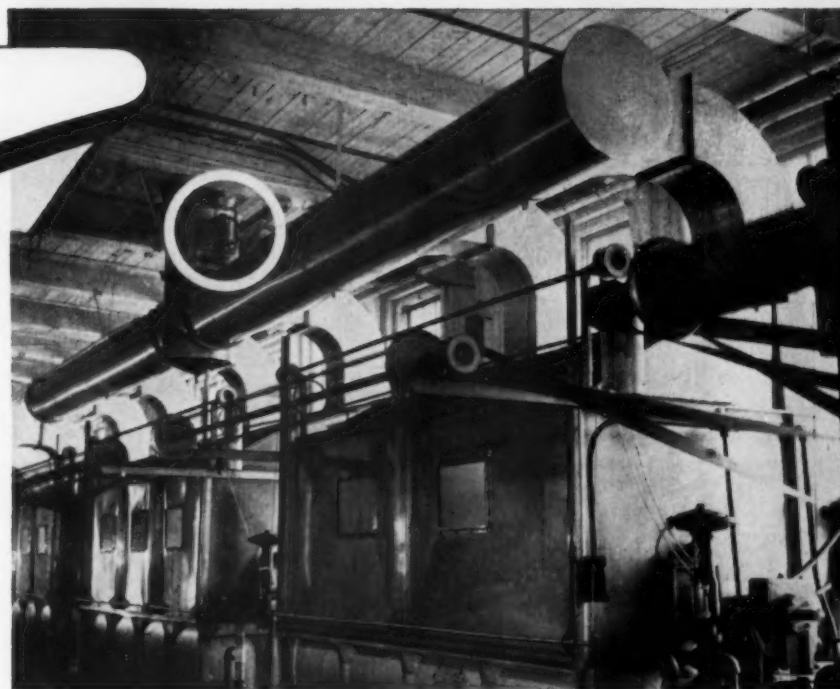
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move more air ... cost less per year

Get a price from your nearby Hartzell representative on the fans and blowers you need. You'll find costs are reasonable. You'll discover two things more, too, following your purchase. One, that power cost per cubic foot of air moved is at the lowest possible level. Two, that maintenance costs remain at a low level year after year. Yes, initial cost is important, but **be sure you get low annual cost**, too. A fifty-dollar initial saving can be eaten up in one year of operation of one fan. Hartzell air-moving equipment is economical to buy **and to operate**. Your Hartzell representative can prove it. If you don't know him, sign and mail the coupon at right.

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Only gummed tape gives you this added strength



Greater resiliency...re-enforced corners. No other form of closure gives your goods as much all around protection as gummed sealing tape! Drop tests, revolving drum tests, and actual shipping tests, prove that packages sealed with gummed tape come through in better condition. This is because cartons with rigid closures shatter or split from shock, whereas those sealed with gummed tape give sufficiently to absorb the shock. Also contributing to the strength of tape-sealed packages is the re-enforcement which tape provides at the corners and edges of the package where abuse is most violent. The taped areas actually become the strongest parts of your cartons.

For better protection use **gummed tape...**
no other closure does so much for so little
and for gummed tape on which you can count for maximum protection specify...



the largest selling gummed tape in the world

Orange Core is available plain or printed, in a choice of widths, weights, lengths and colors.



You can depend on Orange Core gummed tape to get your cartons to their destination in good condition because Orange Core is made of heavy-duty long-fibered kraft manufactured by Hudson especially for Orange Core tape. The adhesive which welds this rugged kraft to your carton is also unique. It activates quickly, grips your package instantly, and retains its hold for the life of the package, despite changes in the weather, rough handling, or long periods of storage. Ask your paper merchant to tell you the complete story of Orange Core tape.

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Ask for folder
titled: "The mark
of a Better Tape!"



(Continued from page 378)

such as we did in 1949 of some \$2,300,000,000, I think that a return of seven per cent is not a large return."

On the matter of depreciation, Mr. Olds said: "You have to charge to current cost an amount sufficient to cover the depreciation of the plants that you are constantly wearing out. It is only fair that we should have a depreciation—an amount sufficient to cover the replacement cost of those facilities. If they are not replaced when they are worn out, we would have no facilities with which to operate... The cost of replacement today is two or three times what it was when most of our facilities were installed. I do not know what the cost may be two or three years from now, but I am sure it is going to be much higher than the original cost of the facilities."

Customers Determine Company Size

Discussing the size of United States Steel, Mr. Olds said he did not believe that the Corporation wanted to be too big. In 1901 when the Company was organized, he said, United States Steel produced two-thirds of the steel of this country and all other companies only one-third. "Today," he said, "it produces one-third of the steel of this country and the other companies produce two-thirds." Mr. Olds pointed out that the size of United States Steel is dependent upon the reception by the customers to its products. "Our consumers determine our size," he said.

"I think competition is going to control our size and is going to control the size of our competitors," he continued. "In 1932, for instance—eighteen years ago—United States Steel had a million tons less capacity than it has today. In those eighteen years the competitors of United States Steel have grown at a rate twenty-three times as great as the growth in the Steel Corporation."



ASA ANNOUNCES NEW INTERNAL WRENCHING BOLT STANDARD

A new American Standard, High Strength, High Temperature Internal Wrenching Bolts, is announced by the American Standards Association, 70 East 45 Street, New York 17, N. Y.

As the name indicates, these bolts are intended for applications where high strength is required under high temperature conditions, such as in steam turbine assemblies. The bolts have a round head with a hexagonal recess, the head being larger than that of regular socket head screws. When the round bolt head is located in a counterbore it may be peened to lock it against rotation.

The American Standard lists bolts in nominal diameters from $\frac{3}{8}$ to 2 in. Bolts up to $\frac{7}{8}$ in. inclusive have coarse threads, and larger bolts, 8-pitch threads according to the American Standard B1.1-1949.

The standard was developed by an ASA committee jointly sponsored by the American Society of Mechanical Engineers and the Society of Automotive Engineers.

TO DO A BETTER PIPING JOB...

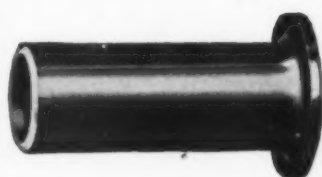


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Your preference for Globe Welding Fittings is supported by a source of supply with exceptional qualifications. Specialized metallurgical experience and facilities gained in years of steel tubing manufacture enable Globe to produce welding fittings by a precision process that yields a superior product.

Send for the Globe Welding Fittings Catalog No. 501.

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SIZE RANGE OF GLOBE SEAMLESS WELDING FITTINGS

Description of Fitting	Standard Weight (Schedule 40)	Extra Strong (Schedule 80)	(Schedule 160)	Double Extra Strong
Elbows 45° Long Radius	½ in. to 24 in.	¾ in. to 24 in.	1 in. to 12 in.	1 in. to 8 in.
Elbows 90° Long Radius	½ in. to 24 in.	¾ in. to 24 in.	1 in. to 12 in.	1 in. to 8 in.
Elbows 90° Short Radius	1 in. to 24 in.	1½ in. to 24 in.	— — —	— — —
Returns 180° Long Radius	½ in. to 24 in.	1 in. to 24 in.	1 in. to 12 in.	3 in. to 8 in.
Returns 180° Short Radius	1 in. to 24 in.	1½ in. to 24 in.	— — —	— — —
Reducers (Concentric and Eccentric)	1 x ¾ in. to 24 x 20 in.	1 x ¾ in. to 24 x 20 in.	1 x ¾ in. to 12 x 10 in.	1 x ¾ in. to 12 x 10 in.
Tees Straight	¾ in. to 24 in.	¾ in. to 24 in.	1 in. to 12 in.	1 in. to 8 in.
Tees Reducing Outlet	¾ in. to 24 in.	¾ in. to 24 in.	1 in. to 12 in.	1 in. to 8 in.
Stub Ends Lap Joint	1 in. to 24 in.	1 in. to 24 in.	— — —	— — —
Caps	1 in. to 24 in.	1 in. to 24 in.	1 in. to 12 in.	1 in. to 8 in.

Flanges available 1 inch to 24 inches in all weights

Producers of Globe Seamless Stainless Steel Tubes
—Gloweld Welded Stainless Steel Tubes—Carbon
— Alloy — Seamless Steel Tubes — Globeiron
Seamless High Purity Ingot Iron Tubes and Pipe.





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combine Strength . . . Rigidity . . .
Attractiveness

Our large production capacity and conveniently located plants ensure prompt customer service at low cost.

Consult us on our many types of combination metal and paper cans, fibre and paper cans . . . paper, fibre and plastic tubes . . . cores . . . and mailing cases.

Ask for our special folder giving details.

See our Exhibit No. 34 — Inform-A-Show N.A.P.A. Convention June 11-14, Cleveland.

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IRON AND STEEL EXPOSITION TO BE HELD IN SEPTEMBER

The thirtieth biennial Iron and Steel Exposition will be held September 26 to 29 in the Cleveland Public Auditorium, Cleveland, O., according to an announcement by the Association of Iron and Steel Engineers.

Steel industry personnel who recommend, specify and buy production equipment, supplies and services will see numerous exhibits devoted to the newest developments and technical advancements in products and services designed to increase production, efficiency, and reduce operating and maintenance costs.

The AISE technical program, which will also be held in the auditorium, will include 40 papers covering various phases of steel mill engineering, operation, and maintenance. During the convention, an inspection trip to National Tube Company's recently completed plant is Lorain, O., is planned.

* * *

EXPECTS POWER CAPACITY TO EXPAND 40% IN NEXT 5 YEARS

We are in the midst of the greatest expansion in the history of the power industry according to Mr. A. C. Monteith, vice president in charge of engineering for the Westinghouse Electric Corporation. Speaking before the AIEE Power Conference held recently at Pittsburgh, Pa., Mr. Monteith pointed out that this country has decreased its installed capacity of electrical generation by one-third during the five years following the war; and will again increase this total by about forty percent in the next five years.

Development of electrical equipment is matching strides with this tremendous expansion. Steam turbines are increasing in size and in efficiency. The need for high generation efficiency under the influence of rising fuel costs has brought reheat back into the picture in a grand manner. Modern reheat turbines either completed or in manufacture by Westinghouse total 12 units with 900,000-kw rating, the largest having 125,000-kw capability.

Sizes of high-speed generating units are increasing. Recently Westinghouse offered to build a 150,000-kw machine using one-half pound hydrogen pressure. It is interesting to note that with 30-pound hydrogen, this machine could deliver 220,000 kva. While 150,000 kva represents the approximate top for single-shaft, 3600-rpm machines at the moment, when there is need for still larger machines, they can be built with confidence.

Switchgear is also advancing to meet the new demands. Only a year ago five million kva was considered the probable upper limit in interrupting capacity for 138- and 161-kv systems. One large system is now planning on the basis of 7½ million kva for its 161-kv system. Improved interrupters are making possible high-capacity, medium-voltage breakers for interrupting times of three cycles instead of five that can be reclosed in 15

(Please turn to page 384)

ELECTRIC WHEELS

Designed to do the Job



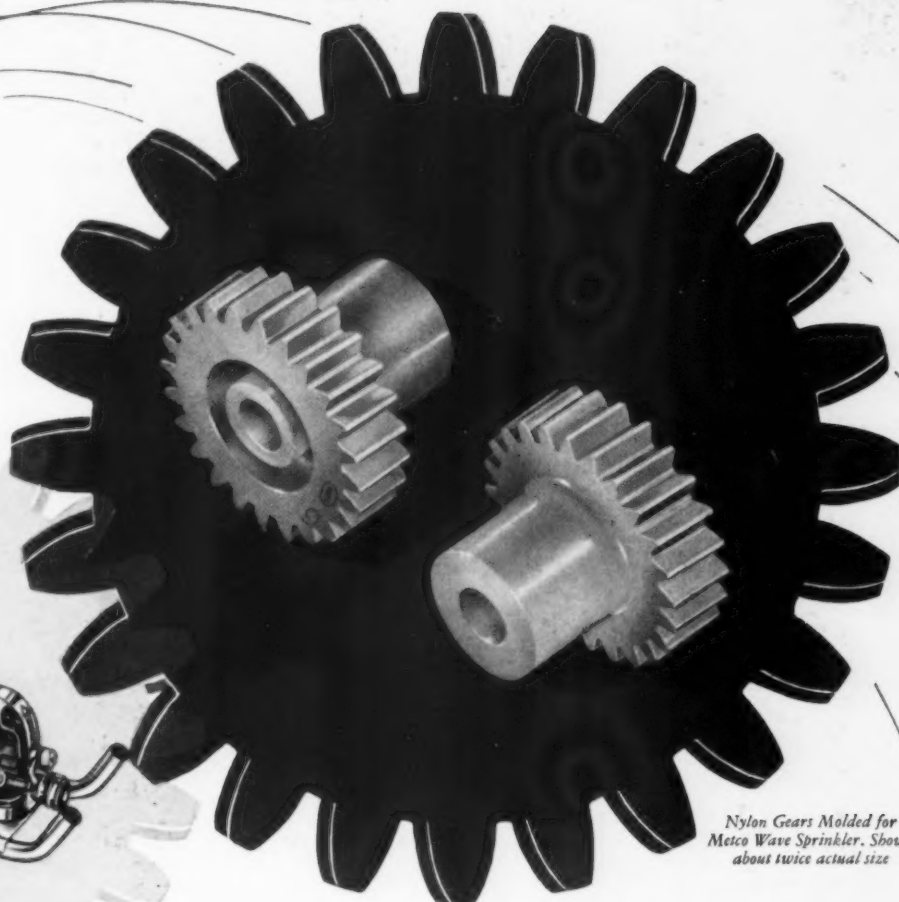
Wheels and Axles are our business, and our engineers are well qualified to recommend the most efficient assembly for your product.

Our factory is modern and tooled for low cost production. We have supplied manufacturers in many different industries for more than 50 years.

Standard or Special, ELECTRIC Spoke-type or Disc Wheels are built for most types of portable equipment.

Send us your specifications and we will submit our recommendations.

ELECTRIC WHEEL CO., 2913 Pine, Quincy, Ill.



*Nylon Gears Molded for
Metco Wave Sprinkler. Shown
about twice actual size*

Skillful Molding

DOES A WELL GEARED JOB

"... For long life with low wear, a non-metallic gear was a design requirement for the Metco Wave Sprinkler. We chose molded gears for economy and because of the wide range of materials which can be molded. We chose nylon as the molding material because of its high wet strength, low moisture absorption and abrasion resistance when operated with water as the only lubricant."

This excerpt from a letter by Mr. C. K. Wilson, Design Engineer for Metallizing Engineering Company, Long Island City, New York, effectively presents a strong case for molded gears.

If Mr. Wilson had continued in that vein, he might also have said,

"We chose Elmer E. Mills Corporation because it is one of the few molders in the country equipped to mold nylon gears."

Why? Because this type of thermoplastic molding presents a challenge few molders care to meet. Since these were undercut "helical" gears instead of the straight "spur" gears, their production presented an unusually difficult job of molding and tool making. Despite the fact that only a few molders can make them, the use of thermoplastic gears is very much on the increase.

Wherever they are used, it is either a case of greater production economy, functional superiority, or both.

So when you are studying the problem of gears for your products, consider the advantages of nylon or other thermoplastic gears. Then let us show how well geared we are to solve this problem for you.

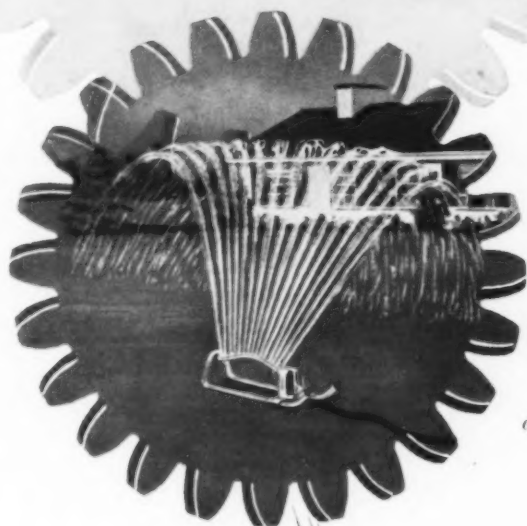
ELMER E. MILLS CORPORATION

INJECTION MOLDERS and EXTRUDERS of: Tenite, Lumarith, Plastacele, Fibestas, Lucite, Nylon, Plexiglas, Polystyrene, Styron, Loalin, Vinylite, Geon, Plexene, Polyethylene, Cerex, Forticel, ~~Metco Wave Sprinkler~~, Saran, and other Thermoplastic Materials.

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Write on your letterhead for the new Injection Molded and Extruded Plastics Catalog. Or, for detailed information about ~~Metco Wave Sprinkler~~ piping, tubing and fittings, write for circulars containing data and illustrations.

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A Cost-Saving
Colson® TRUCK
For Every Business
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TRUCKS, TRUCKS, TRUCKS
 ... to meet every materials-handling need. Trucks for Department Stores, Hospitals, Restaurants, Office Buildings and Industry—all precision-built for fast, economical operation. The right Colson trucks can save you money. Our engineers are glad to help you select the equipment that meets your needs—exactly.

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THE COLSON CORPORATION
 ELYRIA, OHIO

(Continued from page 382)

cycles instead of 20 or 30. The reduced arc energy is lengthening service periods so that five years is considered as ample between reconditioning, with oil tests only at yearly intervals.

Transformers continue to grow in capacity. A rating of 145,000-kva for a three-phase transformer has already been reached with possibly even larger ones in the near future. Two-hundred thousand kva can be provided if desired. It is certain that three-phase transformers will be dominant in the future.

Liquid-filled transformers will largely disappear from industrial plants and office buildings to be replaced with air- or gas-cooled types. Development of a completely sealed, dry-type transformer makes practical elimination of transformer liquids in subways and vaults, in contaminated atmospheres, and even outdoors.

PLAN NATURAL GAS DELIVERY FOR NEW ENGLAND IN 1951

Texas Eastern Transmission Corporation has concluded a contract with Algonquin Gas Transmission Company for the delivery of up to 250 million cubic feet of natural gas a day for resale by Algonquin to utilities in the New England area, Texas Eastern announced recently.

Texas Eastern and Algonquin have applied to the Federal Power Commission for authorization to construct the necessary facilities to serve the New England area. Hearings on the two applications are expected within the next few months. If favorable action is taken by the FPC, actual construction can be started by the end of the year so that deliveries of gas may be started in time for the winter heating season of 1951-52, Texas Eastern said.

In addition to serving the needs of Algonquin, Texas Eastern proposes to deliver additional quantities of gas to some of its present customers in its existing service area. Texas Eastern's plan contemplates delivery from new sources of supply from Southwest gas fields and use of underground storage in depleted Appalachian fields near the Company's present lines. Underground storage will afford balancing operations between heavy demands of the winter heating season and the off-peak demands of the summer season, Texas Eastern explained.

NATURAL RUBBER FINDS NEW APPLICATIONS IN INDUSTRY

Rubber latex as a basic ingredient—in combination with certain types of dehydrated powders—has, after a fifteen year trial period, proven itself to be a most satisfactory material for ship floorings, according to an article in the recent issue of "Rubber Developments" published by the British Rubber Development Board.

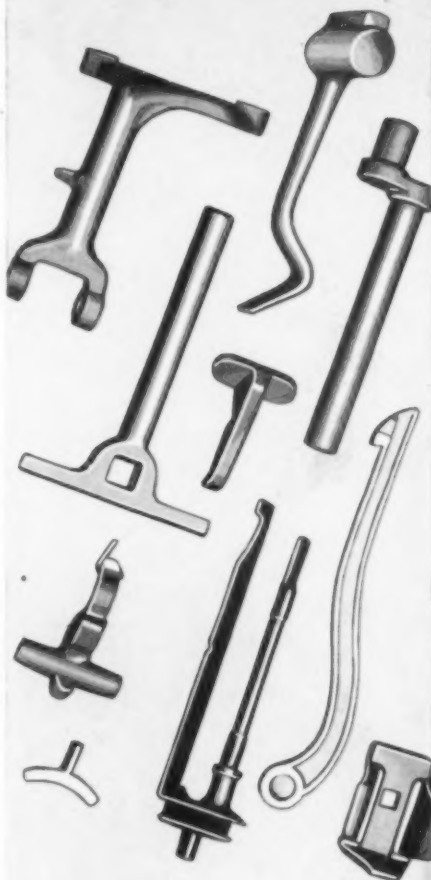
The first ship application was made on the Queen Mary, then the largest ship in the world, the article continues, and this composition was found to meet all

(Please turn to page 386)

RITCO

DROP FORGINGS

aid in production of
TEXTILES



SMOOTH and free of flash, RITCO Drop Forgings are widely used for textile machinery parts and for other parts, tools and implements where uniform strength and accuracy are essential. RITCO bright finish drop forgings are produced to your blueprint by experienced operators with modern machinery, in weights from ¼ lb. to 15 lbs. Complete finishing equipment. Estimates gladly submitted.

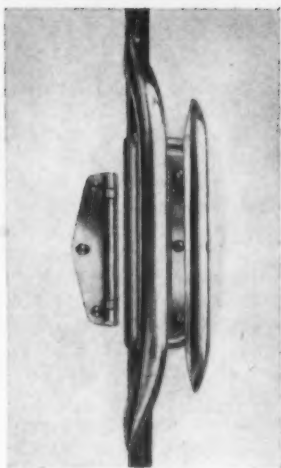
Remember RITCO for
DROP FORGINGS • SPECIAL
BOLTS, NUTS AND STUDS

RHODE ISLAND
TOOL COMPANY

148 WEST RIVER STREET
 PROVIDENCE 1, R. I.

Exclusive New England Representative
 for Cleveland Cap Screws

Serving American Industry Since 1834



SHORT, SHORT STORY:

- 1** Latch assembly on deep freeze cabinet was made of steel.
- 2** Parts rusted—plating peeled—owners complained.
- 3** "Covert" switched to brass—saved customer 30¢ a set.
- 4** Better product—no complaints—everybody happy.

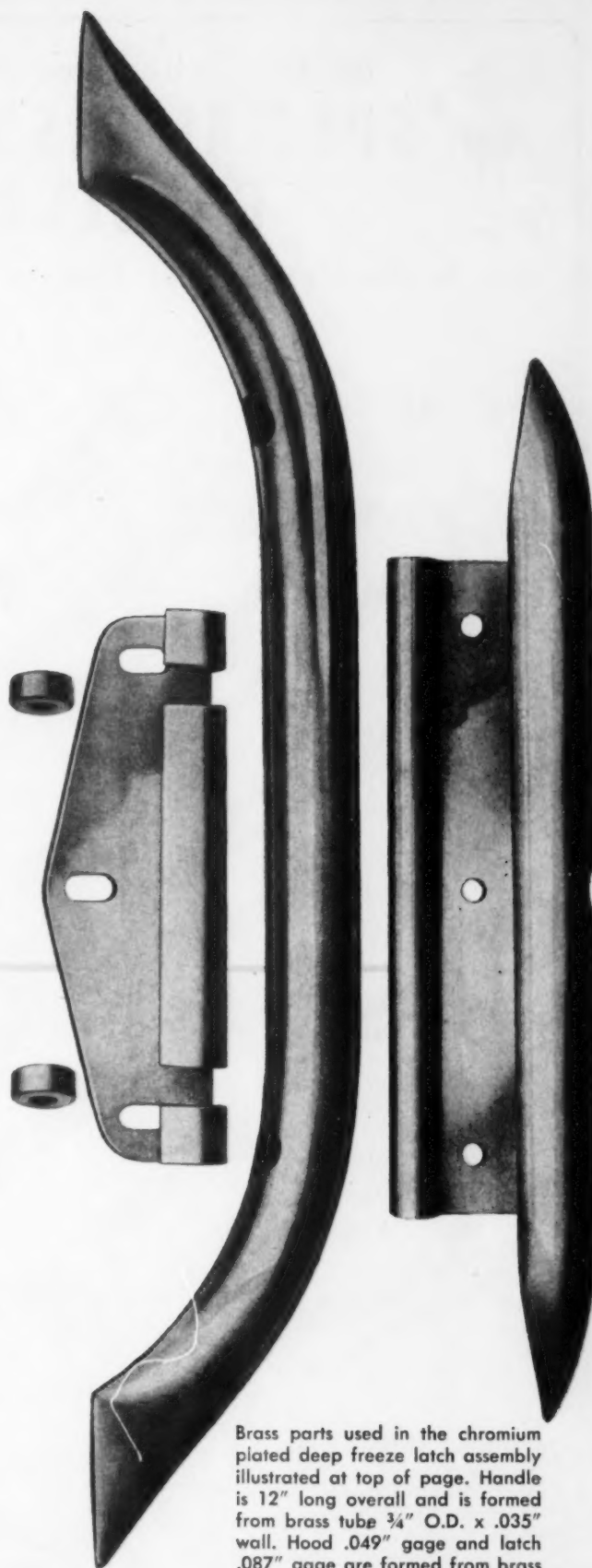
IT'S AS SIMPLE AS THAT. Cost of the brass (weighing less than a pound in the finished parts) was higher. Fabricating cost and procedure were exactly the same. However, the cost of buffing the 70-odd square inches of exposed area, before plating, was cut in half and this, plus the elimination of rejected parts, effected a net saving of 30¢ per set over the extra cost of the metal.

This happened to the Covert Manufacturing Co., Troy, New York. It could happen to you. We'll be glad to talk it over. . . . Address The American Brass Company, Waterbury 20, Connecticut; in Canada, New Toronto, Ont.

ANACONDA

the name to remember in **COPPER, BRASS & BRONZE**

P.S. Chromium plating on brass is brighter . . . less costly . . . longer-lasting



Brass parts used in the chromium plated deep freeze latch assembly illustrated at top of page. Handle is 12" long overall and is formed from brass tube $\frac{3}{4}$ " O.D. x .035" wall. Hood .049" gage and latch .087" gage are formed from brass strip. Rollers are turned from $\frac{1}{2}$ " diameter brass rod.

5097



Nat Says: When you have a **SPECIAL FASTENER PROBLEM**

Use National's "Special Products Service"



On fastener problems requiring a different type of bolt, nut, screw or pin, "National" fastener engineers can help you find a practical solution.

Even on such highly specialized products as those illustrated above, "National's" wide range of cold heading equipment and specialized machinery makes possible economical production.

Call in your nearest "National" representative, or send us your specifications.



THE NATIONAL SCREW & MFG. COMPANY...CLEVELAND 4, OHIO

(Continued from page 384)

requirements, under all conditions, according to the report. It proved resilient, adhesive to clean steel, non-corrosive, non-flame and virtually non-smoke conducting, claims the report.

Another use of natural rubber in business and industry is for rubber stamps of symbols in engineers' drawings, states an article in this publication. Great savings in time and cost can be made, the report claims, by using these stamps rather than laboriously drawing the symbols. Practical for common-place pieces of equipment, such as control apparatus, circuit breakers and starters, the rubber stamps are made by the usual photographic etching processing on zinc plates.

Copies of "Rubber Developments" may be obtained from the Natural Rubber Bureau, 1631 K Streets, N. W., Washington 6, D. C.

1 1 1

U. S. STEEL SUPPLY CO. WILL MARKET PATTERN DEVELOPER

United States Steel Supply Company, warehousing subsidiary of U. S. Steel, has been named exclusive distributor of Alhart pattern developer, in an agreement with Stewart Sales Company, of Minneapolis, Minnesota.

Alhart, according to the manufacturer, will draw any pattern in about a minute's time, regardless of angle or fitting. It can handle patterns having round, oval or rectangular openings with equal ease. Simple to operate, no knowledge of pattern drafting is required.

Developed as a result of research over a couple of years, Alhart has been on the market only a few months, and was displayed publicly for the first time at the annual Purchasing Agents show held in Chicago recently.

1 1 1

SILVER PLATING AIDS JET-ENGINE BEARINGS

Silver and tin, two metals far apart in value, are working closely and effectively in solving lubrication and corrosion problems of high-speed aircraft engines.

The metals are used as thin deposits on precision aircraft bearings produced by SKF Industries, Inc., for jet and piston-type engines. Plating the bronze retainers of roller bearings with silver, explains F. W. Wellons, head of the firm's aircraft division, lessens the chances of one metal's "seizing" another when operating under extremes of speeds and temperatures such as those encountered in jet planes. That is because the silver, one one-thousandth of an inch thick, acts as a "dry" lubricant. These retainers are in bearings that support the jet's main turbine shaft. The silver coating is 99.99 fine—far purer than sterling.

The races and rollers of such bearings in piston-type engines are tin plated to prevent water from rusting the highly precision parts. The tin coating is even thinner—three one-hundred-thousandths of an inch.

HODELL

IS THE NAME
FOR DEPENDABLE

CHAIN

Whatever your chain requirements, you can depend on the name "Hodell" for top quality and long life. A few of the many types of Hodell Chain are shown below. Hodell also manufactures many formed wire specialties and can make your chain assemblies to your specifications.



PROOF COIL
Trade sizes 3/16 and up



LIBERTY COIL
Twist or Straight Link. Sizes No. 6 to No. 7/0



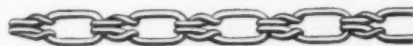
LIBERTY MACHINE
Twist or Straight Link. Sizes No. 5 to No. 7/0



PASSING LINK
Sizes No. 2/0 to No. 4/0



BULLDOG COIL
Sizes No. 7 to No. 10/0



SAMSON COIL
Sizes No. 4 to No. 7/0



SINGLE JACK — STEEL OR BRASS
Sizes No. 24 to No. 5



DOUBLE JACK — STEEL OR BRASS
Sizes No. 24 to No. 10



HODELL CHAIN CO.
CLEVELAND 3, OHIO

CORRUGATED REPLACES WOODEN CRATES FOR FRAGILE PRODUCT

Safe packing for a fragile product is assured Norristown Magnesia & Asbestos Co. with the container designed and manufactured by the Pennsylvania Corrugated plant of Robert Gair Company, Inc., New York, manufacturers of folding cartons, paperboard and shipping containers.



Norristown's Cell-O-Tone, quality pipe covering manufactured of corrugated asbestos, is shipped to jobbers, plumbers, contractors in a shipping case attractively printed dark blue and white, with a new design which includes an illustration of the product.

Air cell pipe covering formerly was shipped in wooden crates approximately 34 inches square and 36 inches deep, standard packaging by all manufacturers of pipe covering at that time. Gair's Philadelphia plant felt that the method of shipping Cell-O-Tone could be improved. After considerable work, they developed a corrugated package, size 20 by 13½ by 36½ inches. It was quite a problem to find a size which would accommodate the different sizes of pipe covering made, but this was decided upon as being a standard package. After making test shipments, Norristown Magnesia & Asbestos Co., whose plant is located at Norristown, Pa., adopted this size as their standard package.

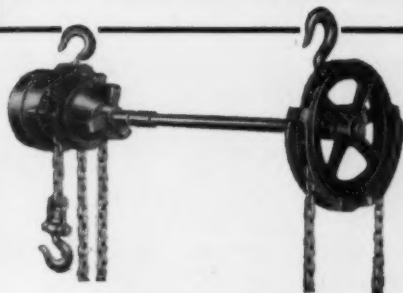
Norristown used their new package as a sales argument, printing the new containers, "The Original Carton Package". They were the first manufacturers out with this new type of package. Within a matter of months, the entire industry had switched from the old wooden crate to the new corrugated case.

1 1 1

VIBRATION-PROOF FASTENER USES SPRING AS A THREAD

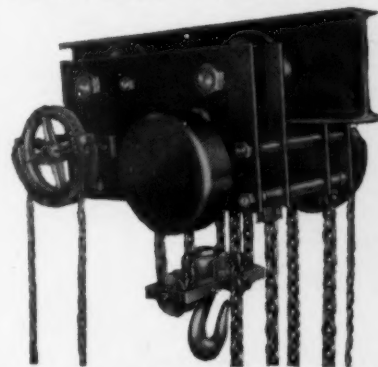
A vibration-proof fastener, recently introduced, will not loosen under the most severe vibration or panel movement, according to its manufacturer, South Chester Corporation, 1403 Finance Bldg., Philadelphia 2, Pa. Called the Southco Spring-Grip fastener, it employs a spring as a thread. The spring acts as a shock absorber and effectively cushions vibration and panel movement. In the "torture-box" testing machine at the Southco research laboratory, the Spring-Grip fastener stayed tight throughout every test while other fasteners broke down in a short time. Samples are available from the manufacturer.

FAST SERVICE on SPECIAL HOISTS



EXTENDED HANDWHEEL

Ideal for handling hot materials from a safe distance... for work where surface must be protected against scratching by the hand chain... for large flat or bulky loads. Sizes available: ¼ to 3 tons. Any standard Chester Spur-Gear Hoist can be readily converted to this type by adding the extended Hand Wheel device.



LOW HEADROOM

Designed for applications where headroom is so low that no other type of hoist can be used. Recommended for existing structures with low headroom—and for reducing costs of new construction by permitting lower ceilings. Sizes available: 1½ to 24 tons.



CHESTER HOIST DIV.
LISBON, OHIO

New Aircomatic® Welding Process cuts materials cost 25% ... saves 4½ hours time



MARTIN QUAID CO., of Philadelphia, Pa., wanted to reduce the time and cost of welding huge stainless steel cylinders used in the manufacture of carpets... without affecting the quality of the finished product.

Dana V. Wilcox, Airco Technical Service Specialist, was called in. He recommended the use of Airco's new Aircomatic process. The cylinder to be welded was 13' 4" long with an O.D. of 34¾", and a wall thickness of .093 Type 304 stainless steel. After establishing the wire speed to be used in the Aircomatic process, the weld was performed in a total elapsed time of 1½ hours — 4½ hours faster than the former method used.

The operation consumed 6½ pounds of Airco Type 316 stainless steel wire, and 35 c.f.h. of Airco high quality inert

gas — all at 25% below the cost of materials used in the old procedure. The customer was well satisfied and now uses the Aircomatic process for fabricating stainless steel as well as aluminum.

If you are interested in applying the Aircomatic process to a particular aluminum, aluminum or silicon bronze, stainless or nickel clad steel fabrication problem of your own, we will be glad to offer technical assistance. If you would like to receive a descriptive bulletin on Aircomatic welding, please write your nearest Airco office for a copy of ADC-661A.



AIR REDUCTION

Offices in Principal Cities

TECHNICAL SALES SERVICE — ANOTHER AIRCO PLUS-VALUE FOR CUSTOMERS

G. E. ENGINEERS BUILD MAGNETIC-FLUID CLUTCH

A liquid which can instantly change to a solid and then return to a liquid again is the basic feature of an improved magnetic-fluid clutch built by General Electric Company engineers.

Only six inches long and six inches in diameter the device is capable of carrying enough power to lift one ton 1,000 feet per minute. The G-E magnetic-fluid clutch is still in the laboratory stage and commercial possibilities have not yet been explored.

The magnetic-fluid clutch was developed in the G-E General Engineering and Consulting Laboratory at Schenectady. Consisting of two metal cylinders, each able to rotate independently on the same axis, the clutch transmits rotary power from its source to its load. The cylinders are separated by a magnetic mixture of oil and finely-divided iron powder.

When the unit is energized, the fluid instantly solidifies, making a rigid connection between the two cylinders, so that as one cylinder revolves, its motion is transmitted to the other.

Power can be applied to the load and removed from it easily by the clutch operator. Degrees of rigidity of the magnetic fluid can be obtained by regulating the current, so that the clutch can be allowed to slip if necessary.

1 1 1

POLYETHYLENE-COVERED ALUMINUM LINE WIRE

Production of polyethylene-covered aluminum line wire, a completely new electrical conductor possessing marked advantages where weatherproof or covered wire is desired, was announced recently by Kaiser Aluminum & Chemical Sales, Inc., Oakland, Calif.

PE covering is offered in a full size range of solid and stranded aluminum conductor as well as small sizes of ACSR (aluminum cable steel reinforced).

This type of covered wire offers advantages over the conventional textile coverings in that it is a smooth, clean, non-sticky plastic material, black in color, with superior resistance to moisture, sunlight, weather hazards and abrasion. Although polyethylene itself is more costly than other covering materials, its use in combination with aluminum conductor gives a product with high serviceability and attractive economy.

The new conductor is being produced at Kaiser Aluminum & Chemical Corporation's new rod, bar and cable mill at Newark, Ohio. It is made by passing the wire through an extrusion machine.

Advantages of polyethylene covered aluminum are outlined by Kaiser Aluminum engineers as: economy; light weight; strength; free stripping, making it easy to clean wire for splices and taps; resistance to abrasion and fungi; no festooning, because it does not rot and festoon like textile coverings; long lengths that can be readily handled because of light weight.

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HFN — a specialty labeling gum — adheres labels to greasy, hot or wet bottles. Ideal for vegetable and mineral oil, olive, condiment, preserve, dairy products and mayonnaise containers. Smooth or stippled glass. Handles all types of label stock — including foil. All types of glass. Withstands dry or moist refrigeration.

HFN comes ready for use. It is a "short" adhesive with top machining qualities. Extremely tacky. Won't crystallize or soften with varying humidities. Only a very thin film is required.

We can show you we mean business.

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Address: 270 Madison Ave., NEW YORK 16; 3461 So. Washtenaw Ave., CHICAGO 32; 735 Battery St., SAN FRANCISCO 11, and other principal cities. In CANADA: National Adhesives (Canada) Ltd., TORONTO, MONTREAL. In ENGLAND: National Adhesives, Ltd., SLOUGH.

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Gum For
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LABELING

EVERY TYPE OF ADHESIVE
FOR EVERY INDUSTRIAL USE

We've got a tough labeling job adhering _____
to _____

☐ Please send 5 gals. of HFN. Bill us at drum price.

☐ Please have a National representative call on _____

Mr. _____

Company _____

Address _____

City _____ Zone _____ State _____



Production reports prove that Keystone's new "special processed" cold heading wire effects considerable savings in the manufacture of Phillips head, clutch head and cross recessed head screws.

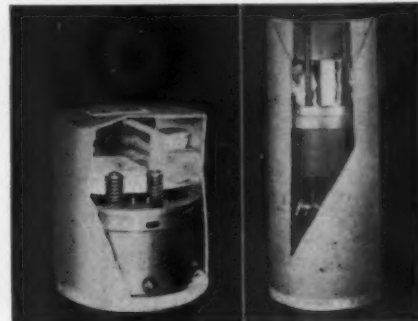
The excellent flow properties of this new wire deliver the desired upsetting and die forming qualities with a high degree of uniformity. Die and plug life are often more than doubled . . . finished product rejections are minimized . . . the cost of expensive final inspection is reduced. The superior plating qualities of "special processed" wire further assure a better finished product.

Regardless of the performance demanded in your wire products, consult Keystone for the materials to meet your most exacting specifications. If special treatment is required, Keystone's metallurgical research and testing facilities are available to supply the answers. Your inquiry is welcomed.



TWO PRIZE WINNING PACKAGES

Two awards for excellence in packaging were won at the recent Industrial Packaging and Material Handling Exposition held in Detroit, Michigan by national manufacturers using fibre drums produced for them by Continental Can Company.



Awarded prizes at Industrial Packaging and Material Handling Exposition

The prizes went to an automotive manufacturer for a fibre drum packaging of metal automotive parts and to a chemical manufacturer for packaging of a five gallon glass carboy of chemicals.

While wood bracing is used to stay the heavy automotive parts and prevent weight shifting inside the fibre drum, the carboy package is constructed in its entirety of paper products with the inner padding consisting of coils of single-faced corrugated packing.

NEW BOOKLET ON INSULATING VARNISHES AVAILABLE

A new 12-page booklet entitled "Practical Factors in Applying Insulating Varnishes" is available from New York University College of Engineering.

The literature was prepared by Dr. Max Kronstein, Research Associate, Adjunct Associate Professor of Chemical Engineering. Dr. Kronstein treats at considerable length these subjects: understanding of basic chemistry; air drying insulating varnishes; evaluation of test methods; reproducing use conditions in tests; new developments; testing of insulating varnishes; and testing varnish film.

Requests for the booklets should be addressed to V. W. Palen, Bureau of Public Information, New York University College of Engineering, New York 53, N. Y., enclosing 25¢ per copy.



TEAMING UP... to Keep Costs Down

Ben Faragalli is an assembly man in one of RCA Victor's television manufacturing plants. His job is final assembly of RCA Victor TV receivers.

His experience is that RB&W tapping screws help him keep up his production and turn out 'quality work. Their surfaces are always smooth and clean—so they are easy to handle. Their dimensions are always accurate, their threads sharp, their heads strong—so they speed his work and reduce rejects.

Ben helps RCA Victor keep assembly cost low—which is reflected in lower total manufacturing costs and more profitable business.



Joseph Luzzi is in charge of RB&W's carbureting—a surface-hardening process which produces a deep and uniform case and enables men like RCA Victor's Ben Faragalli, using RB&W tapping screws, to do faster work.

It is one of many processes in which RB&W bolts, screws, nuts and rivets receive specialized treatment dictated by customers' individual requirements. Breadth of facilities is one of the reasons why RB&W tapping screws, cap screws, machine bolts, carriage bolts, machine screws, nuts, rivets and other fasteners are considered "first choice" by so many of America's leading manufacturers.

RB&W

The Complete
Quality Line

RUSSELL, BURDSALL & WARD BOLT AND NUT COMPANY

Plants at: Port Chester, N. Y., Coraopolis, Pa., Rock Falls, Ill., Los Angeles, Calif. Additional sales offices at: Philadelphia, Detroit, Chicago, Chattanooga, Oakland. Sales agents at: Portland, Seattle. Distributors from coast to coast.

105 Years Making Strong the Things That Make America Strong

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TOWER'S FISH BRAND * NEOPRENE



These sturdy, durable, 100% DuPont **NEOPRENE** garments give that extra service to those who require protection from greases, oils, and most acids. There is a TOWER protective garment especially adaptable for every type of industrial activity. We will be glad to recommend the garment which best meets your individual requirements.



*A chemical rubber product of the DuPont Company

For folder of styles and detailed information write Department PA.

NEOPRENE

RUBBER



A. J. TOWER CO.
24 SIMMONS ST. BOSTON, MASS.



TO KEEP THE RECORD CLEAN!

There is a **V. P. D.** Plastic Holder
for every industrial need



Time was when we bought crackers out of a barrel — they're wrapped and protected now. In shop and factory habits have changed, too. The records are wrapped for protection.

Thanks to V.P.D. Plastic Holders — you can easily insert, protect and keep visible

- Factory Records • Drawings and Charts
- Production Data • Inventory and Price Lists

They are no longer smudged and hard to decipher. Mistakes through mis-reading are avoided.



Like "sterling" on silver

V.P.D. means

Visible Protective Display
— AT ITS VERY BEST!

REG. TRADEMARK

Each V.P.D. item—holder for tag, ticket, blueprint, traveler, etc.—has been standard with American industry for more than 17 years. Each is designed to meet a specific need.

Only the highest grade transparent plastic sheeting goes into their manufacture — the 5 to 20 pt. plastic sheeting of proven endurance.

V.P.D. equipment will keep your factory and office records clean and bright and easy to read, always, regardless of the handling they get.

So, for top value all ways, be sure you get genuine V.P.D. products.

SEND FOR THIS CATALOG

Our handsomely illustrated 20-page Catalog Digest B is yours for the asking. It gives full details on transparent plastic holders and all other V.P.D. items sold through dealers. Please specify Catalog Digest B. If you can't locate a dealer, write and we will direct you.



MANUFACTURERS
153 West 23rd Street, New York 11, N. Y.

JOSHUA MEIER CO., INC.

FLASH WELDING WITHOUT FLASH DESCRIBED BY REYNOLDS METALS

Explanation of how percussion welding techniques have been successfully adapted to miter welding extruded aluminum sections without producing any flash is contained in "Technical Advisor #13" issued by Reynolds Metals Company, 2500 South Third St., Louisville 1, Ky.

The article details results of a study made to reduce flash resulting from miter welding extruded aluminum sections such as those used in the manufacture of window frames, screens, storm windows, and the like.

A newly devised flash welding system is described which permits the flashing period to be reduced appreciably while also confining the pushup to a hammer blow to obtain the advantages of percussive welding.

Also dies gripping the work are relieved by cutting them back at about 60°, permitting a closer grip on the work and exertion of a "pinching" action to pinch off the flash.

As a result, upset metal that originally extended for 1/4-inch across the weld zone to create a tremendous amount of work in finishing off the weld has been reduced to a mere line, practically eliminating any need for extensive weld finishing. The weld zone is reduced to less than one-hundredth of an inch, with no weakening of metal adjacent to the weld zone from annealing.

This latter feature is important to aluminum fabricators because it means that high-strength aluminum alloys can be fabricated in the heat-treated condition with hardly any reduction in strength due to welding. Previously, where strength was important, it was necessary to heat the fabricated assemblies after welding, an expensive and sometimes impractical operation with large or bulky weldments. The new technique eliminates this difficulty.

1 1 1

NEW ONE-COAT ENAMEL FOR ODD-SHAPED METAL ITEMS

A new one-coat synthetic enamel for conveyor dip application on odd-shaped metal items has been developed by the United Lacquer Mfg. Corp., of Linden, N. J., manufacturer of industrial finishes.

This new product, Base 38862, breaks at vital points and adheres well to various types of metals. Because of these properties, this synthetic enamel evenly covers all surfaces of odd-shaped items in a single dip operation, it was explained by John Redzinak, head of the company's Synthetic Research Division.

Since enameling such odd-shaped pieces normally has required more than one operation, use of the new one-coat enamel is expected to yield considerable savings in manufacturing time and unit costs.

Base 38862 flows well on carpet sweeper bodies, odd-shaped metal containers and other similar objects. It may be baked in a gas oven or under infra-red lights. It is available in all colors, in a gloss, satin, or dull finish.



BWH AIR "BROOM" SPEEDS UP TEXTILE MILL HOUSECLEANING

Here's an air hose that's specially engineered for the textile industry. BULL DOG TEXTILE AIR HOSE *whisks* lint and waste materials from spools, spinners, tenterers, etc. . . . speeds up cleaning operations . . . saves man and machine hours.

Easy-to-handle BWH BULL DOG TEXTILE AIR HOSE has black, non-porous, age-resistant tube. Strong, braided rayon carcass makes this hose lightweight and

flexible . . . yet it carries working pressures of from 200 to 300 pounds! Smooth red synthetic rubber cover is resistant to abrasion, and to vegetable and mineral oils . . . a terrific advantage in textile mills!

★ ★ ★

HAVE YOU A JOB WHERE STAMINA COUNTS? Bring us your toughest problems. We're specialists in solving them. Consult your nearest BWH distributor or write us direct.

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PLASTIC FOAM OFFERS VARIED USES, PACKAGING, INSULATION, ETC.

The development of plastic foam involving the use of various plastic resins, and also rubber, yielding a stable, permanent solid foam, opens the way for numerous practical applications of the product, according to Waterway Projects, Inc., 1012 N. Highland Ave., Los Angeles 38, Calif. This company also has designed a small, portable automatic device which needs merely to be connected to an electric outlet, and permits users to produce the foams on the job.

Among the applications of water-resistant types is that for insulation. Certain types of foam weigh but 0.5 lb. per cubic foot, with thermal conductivity about one-half that of cork. The resiliency of the foam readily adapts itself to irregularities in structural form and permits tight fitting said to be unaffected by vibration and temperature changes. High efficiencies are said to be obtained by the use of the foam in the form of granules as a cheap substitute for ground cork. The foam may also be used for sound deadening, and will absorb 90% or more of the sound energy in the audible range.

Plastic foam is finding increasing application for the shipping and display of flowers and perishables. Of particular interest is the hydro-philic or rapid wetting foam which supplies moisture to plants for long periods. This wettable-type may be used as a liner for shippers and also as an embedding material. These materials may be frozen and used as liners, and are said to last at least 50% longer than an equivalent weight of ice. As the foam retains the water, there is no dripping, a factor of importance in making air shipments.

Also of interest is the fact that the foam may be molded, lending itself to the development of absorbent and non-sweating products, and sterilized foam shapes for therapeutic purposes.

Another suggested use is for packing delicate equipments or glassware by granular or shredded foam, instead of excelsior or shredded paper.

1 1 1

POWDER-ACTUATED FASTENING TOOL

The Drive-It "300" powder-actuated fastening tool has been introduced by the Powder Power Tool Corp., Portland, Ore. One of the major features of the new tool is "controlled power" whereby the penetration of the fastening "pin" can be varied for materials of different densities. This eliminates the need for using three or four different powder charges. Another innovation is the introduction of the flangeless "drive-pins" which eliminate the necessity for digging sheared flange from the barrel. The tool also features three-way safety, semi-silent operation, "twist of the wrist" firing (no pushing or hitting), a built-in safety pad, and an automatic extension barrel which enables the user to get in narrow places without special extension barrels.

Ever stretch a backbone to hold 500 ribs?



Courtesy Rittling Corp.

You need plenty of spinal column in making this convector radiator section. Over 500 ribs, or fins, are attached to its tubular backbone—and the attaching, while ingenious, is tough on the tube.

Assembly is made by dropping the fins into a slotted jig, inserting the tube, and ramming terrific pressure through the tube to expand it into a jam fit with the fins. In the process the tube O.D. between fins is enlarged by thirty thousandths—actually creating a groove to firmly hold each fin.

Where does the fabricator find tubing to fill this unusual service demand? Right from Frasse. Frasse has supplied the seamless tube for this requirement since its beginning in 1946. And in 4 years of this grueling application—in tens of thousands of feet put to this exacting test—there has never been a single failure.

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you've plenty to work with. For Frasse warehouses stock over 1200 tube sizes alone—from 3/32" to 24" O.D., in wall thickness from .022" to 1". And for technical assistance, you'll find Frasse engineers always ready to help analyse the profit potential of tubing in your product. Call Peter A. FRASSE and Co., Inc., 17 Grand St., New York 13, N. Y. (Walker 5-2200) • 3911 Wissahickon Ave., Philadelphia 29, Pa. (Baldwin 9-9900) • 50 Exchange St., Buffalo 3, N.Y. (Washington 2000) • Jersey City • Syracuse • Hartford • Rochester • Baltimore

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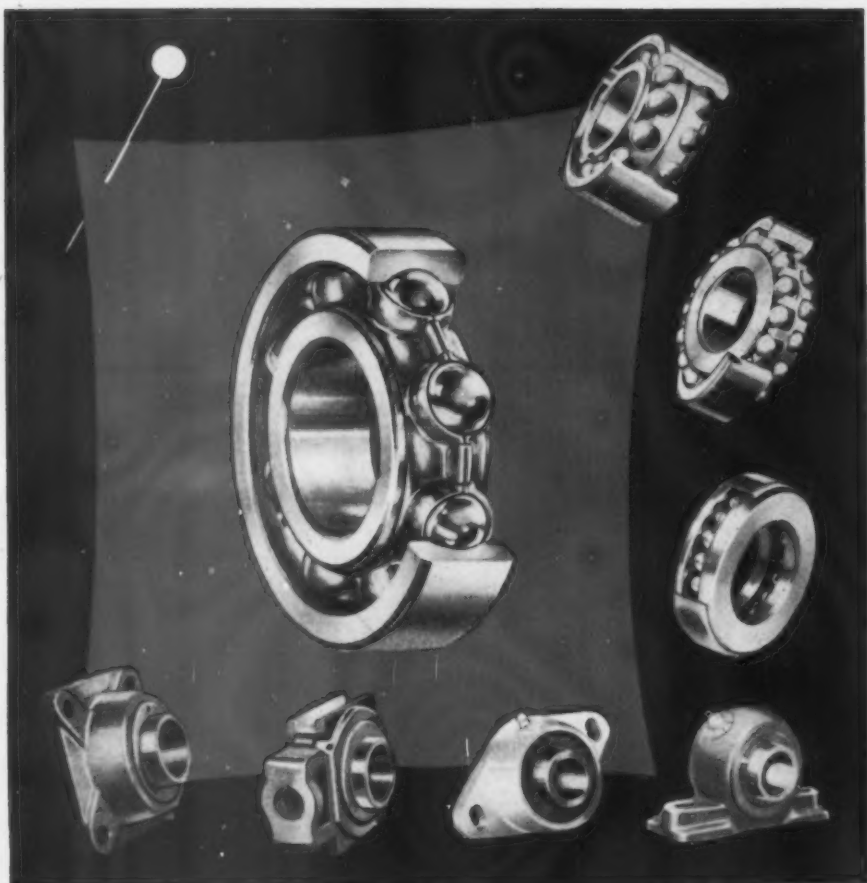
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It pays, and pays well, to remember that only from machines that transmit their power smoothly do you get truly efficient, truly economical power. And smooth power can only come from the proper and adequate application of good bearings... for example, AHLBERG bearings.

Try, test and compare Ahlberg bearings. We believe you'll decide your dollars can't buy better performance than these fine bearings give. Whether your requirements are for production or maintenance you will find Ahlberg an understanding, complete and capable bearing source. We have served industry—every branch of it—since 1908. We are confident that from this accumulated wealth of experience can be drawn worthwhile savings for you—in reduced operating and maintenance costs of the machines you make or use. Write, wire or 'phone today!

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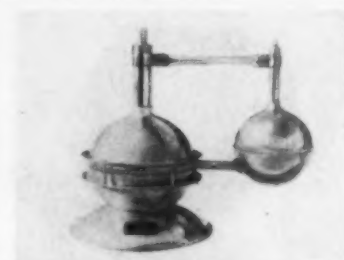
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UNIQUE CONTAINER FOR STORAGE AND TRANSPORT OF LIQUID HYDROGEN

An unusual container for the storage and transport of liquid hydrogen and liquid helium is announced by Hofman Laboratories, Inc., 212 Wright St., Newark, N. J. The liquid hydrogen container (U. S. Pat. No. 2,453,946) is made of three concentric copper spheres. The inner and outer spheres form a conventional vacuum flask with facing interior surfaces polished to a mirror-like finish. Between them is placed a third sphere, highly polished on both sides, which acts as a radiation shield. This shield is attached by a unique connection to the inner sphere of a smaller side flask for containing liquid nitrogen.



Evaporation losses of liquid nitrogen or helium in storage and handling are reduced to minimum.

Since liquid hydrogen boils at an extremely low temperature (-254°C.), it rapidly returns to its gaseous state even when placed in a conventional vacuum flask. The new container greatly limits this action by providing a cold barrier in addition to vacuum insulation and reflective surfaces. By conduction the radiation shield of the main flask is cooled to the temperature of the liquid nitrogen in the side flask. Thus the evaporation losses of liquid nitrogen (or helium) in storage and handling are reduced to a negligible minimum.

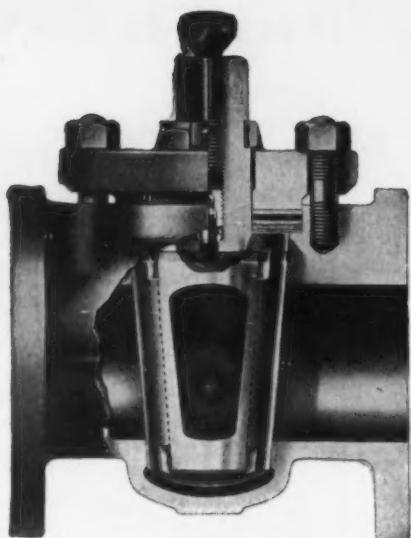
The containers are available in three standard sizes, 10, 25 and 50 liter capacities with side flasks holding 5, 15 and 25 liters respectively. The main flask is fitted with an outer protective casing and base made of spun aluminum.

KELITE INTRODUCES NEW PAINT-BONDING PROCESS

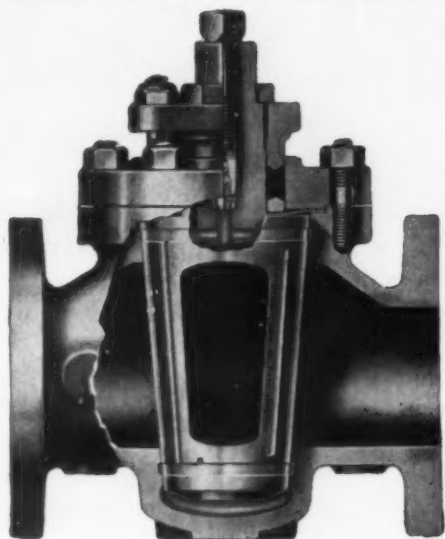
Poly-Kote is a new process developed by Kelite Products, Inc., Los Angeles 54, Calif., for the treatment of iron and steel preparatory to painting, which eliminates the need for treating with chromic acid.

It forms a dense smooth film of low porosity and high plasticity which cannot absorb paint excessively. The uniform, fine-textured, crystalline coating can be controlled to provide a light or heavy paint-bonding film. Salt spray tests show superior resistance to rusting both on painted and unpainted work.

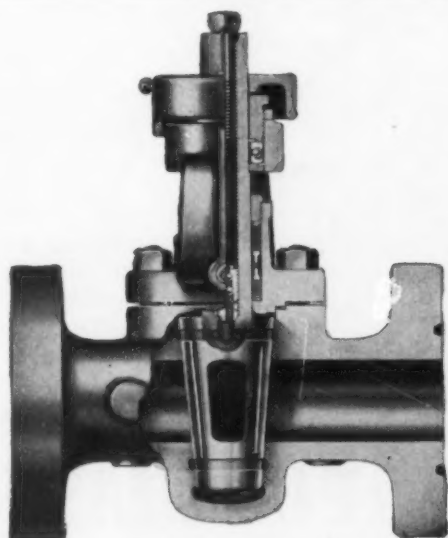
No expensive equipment is required for Poly-Kote and immersion or spray application works equally well. It is non-toxic and non-inflammable and is described as very inexpensive.



Single Gland Type



Regular Gland Type



Bearing Type

FOR HANDLING

*Acids...
Solvents...
Sludges...*

**and other
troublesome liquids—**

USE WALWORTH LUBRICATED PLUG VALVES

When handling acids, condensates, dyes, oils, solvents, solutions, slurries and hundreds of similar "troublesome" liquids, you get better control, more dependable service and lower operating costs with Walworth Lubricated Plug Valves.

These valves have proved their ability to give easy operation . . . fast action . . . tight shut off . . . greater protection against corrosion. Turning is smooth and easy; just a $\frac{1}{4}$ turn from full-opening to full-closing. Moreover, Walworth Lubricated Plug Valves are tightly sealed against leaks — *whether open or shut.*

Walworth Lubricated Plug Valves are available in sizes $\frac{1}{2}$ " to 26" for pressures from 125 to 5,000 psi, and for vacuum requirement. For further information about Walworth's Complete Line of Lubricated Plug Valves, see your Walworth distributor or write for Catalog No. 46L.

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JUNE, 1950

Want Additional Product Information? See Page 19.

397

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3000F FURNACE REDUCES RESIDUE FROM SMOKE STACKS

A new type of furnace for large industrial boilers which generates heat up to 3000 degrees F and at the same time greatly reduces residue from smoke stacks was recently described before the Southeastern Electrical Exchange meeting in Biloxi, Miss.

Known as a "cyclone furnace" the device burns crushed coal and other fuels in a whirling tornado of flames which produces high temperatures to assure burning of all combustible material and a centrifugal action which throws non-combustible residue against the furnace walls to melt and drop into pits as slag.

R. K. Allen, staff engineer of the Babcock & Wilcox Company, which developed the "cyclone furnace," told the electrical group that the cyclone principle was first used by the company in the early 1930's while developing a compact, self-contained incinerator to help solve municipal refuse disposal problems. Results were so good that the principle was turned to the primary business of the Babcock & Wilcox Company, developing and producing steam generating equipment. Allen pointed out that "findings led to development of the present cyclone with the object of efficiently burning lower grade, high ash coal with a minimum of fly ash discharge and minimum slagging difficulty."

1 1 1

TESTING OF HYDROMETERS

To improve the usefulness of hydrometers and to facilitate their testing on a uniform basis, the National Bureau of Standards has just published a booklet, *Testing of Hydrometers*, which sets forth desirable features of design and construction. This booklet is now available from the U. S. Government Printing Office.

The various scales commonly used for hydrometers are defined, and recommendations are given for subdividing and marking them. These scales include density, specific gravity, degrees API, percentage by weight, percentage by volume, percentage proof spirit, Brix, Balling, and others. The relations between some of the arbitrary scales and specific gravity are stated. In addition, the circular outlines the conditions that should be fulfilled by hydrometers submitted to the Bureau of Standards for test, the procedure used in testing hydrometers at the Bureau, and the form of certificates and reports issued as a result of these tests. Instructions and other helpful information about submitting hydrometers for test are given.

Circular C477, *Testing of Hydrometers*, by Elmer L. Peffer and Mary G. Blair, 9 large double-column pages, illustrated, 10 cents a copy, available from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. Remittances from foreign countries must be in United States exchange and must include an additional sum of one-third the publications price to cover mailing costs.

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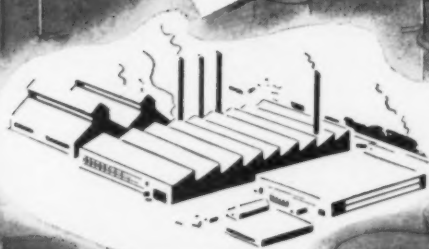
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With two large foundries mechanized with modern equipment, production moves fast — delivery schedules are met — quality is maintained.

Your castings department can be within the reach of your telephone when you make Forest City Foundries your casting headquarters.

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Belt conveyors have replaced wheelbarrow and shovel in this modern installation of 18 molding stations.

This car conveyor system handles molds for continuous pouring.

Conveyors throughout the core-making areas quickly handle cores for faster, better baking.

An overhead trolley conveyor takes out hot castings for a long ride—to be cooled on the roof.

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**NEW LABELING TAPE
IS SMUDGE-PROOF**

A new smudge-proof labeling tape, has been introduced by the Labelon Tape Co., 100 Anderson Ave., Rochester, N. Y.

The pressure sensitive tape is water proof, oil proof, acid resistant and will withstand temperatures up to 150 degrees Fahrenheit. Made of two sheets of acetate tape with a special carbon material sealed between, identification cannot be erased, smudged, or rubbed off.



Marking cannot be rubbed off

Packaged in its own dispenser, Labelon is available in $\frac{3}{8}$ or $\frac{3}{4}$ inch widths with either a blue or black edging. Any desired length is easily torn off.

The tape is said to be designed for use in places where ordinary labels are impractical or would be obliterated by constant handling. Sales testing of the product has indicated a large demand for it for identification of equipment or samples during laboratory tests, under adverse weather conditions, in water, or when exposed to acid, according to the company.

1 1 1

**SHOWS NEW APPLICATIONS OF
FLUOROCARBON-TYPE PLASTIC**

The M. W. Kellogg Company, Jersey City, N. J., recently demonstrated more than a score of new industrial applications for Kel-F, fluorocarbon-type thermoplastic, a relative newcomer to the field developed during the search for corrosion resistant materials to be used in connection with the production of U-235.

Attesting to the value of the chlorine atom included in the formula, which differentiates Kel-F from similar fluorocarbons and makes the product readily moldable, the uses include those for which Kel-F has been molded by all standard methods such as injection, transfer, compression and extrusion. In addition, waxes, greases and oils from Kel-F polymers of low molecular weight were shown.

Among the actual applications are Kel-F-lined hose and special, softpressed seal rings made from graphite, asbestos, and Kel-F for use as centrifugal pump shaft packing. Others include Kel-F-coated high-temperature radio hook-up wire made by two different concerns, hermetically sealed transformer terminals, special gaskets, "O" and "V" rings, "U" cups and a diaphragm for special pumps.



22 Ways to Stop Using 2 Where 1 Will Do!

**WHEN TOUGH JOBS DEMAND TOUGHER FASTENINGS
...YOU'LL NEED FEWER REPLACEMENTS WITH MONEL**



**How An Electrical
Equipment Manufacturing Company
Put Monel Fastenings to Work**

When power lines and steam locomotives *both* go under a viaduct, you meet a nice problem in corrosion. The fiery blast from the iron horse quickly ruins ordinary conduit fastenings. But one company we know solved the problem with Monel. They used $\frac{3}{4}$ " Monel bolts, 27" long. That conduit is going to stay put for a long time.

On some jobs, ordinary fastenings can be used with no worries.

But important jobs need extra protection against corrosion...rust...overstressing...shock...vibration...heat...cold.

For those jobs you need dependable fastenings, *Monel** fastenings.

Monel gives you all the "extras" that mean life in tough spots.

For example, Monel resists corrosion by most acids, alkalis and salts.

You get superior mechanical properties, too. Compare Monel with the free-cutting steel used in ordinary fastenings, and you find Monel is 20% stronger...30% more ductile

...40% tougher.

Maybe your problem is extreme temperature. Again, Monel is your answer. For Monel fastenings retain their strength at elevated temperatures or at the coldness of liquid air.

How many places in your plant or product do you want (*and need*) the extra advantages of Monel fastenings? Remember, *any* fastening you need is available in longer-lasting Monel.

TEST A MONEL FASTENING, FREE!

Write to Bob Johnson of Inco. Tell him your problem and the type and size you need. He'll send a sample...plus the address of your nearest supplier.



THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street, New York 5, N. Y.

*Reg. U. S. Pat. Off.

Monel* Fastenings are stronger..tougher..safer

How to meet a payroll (at a cost of \$3.19)



Twenty-four hours before factory payday, another check-writing machine was needed *fast*. At 10 A.M. plant manager ordered one from supplier 400 miles away. He specified Air Express, the service regularly used to keep production rolling. 26-lb. carton delivered same day at 2 P.M.—in time! Shipping cost only \$3.19!



\$3.19 was total cost—and included door-to-door service! Air Express is the most convenient way for you to ship or receive—in addition to being the world's fastest transportation method.



You get round-the-clock service with Air Express. Shipments go on all flights of the Scheduled Airlines. Air Express is service you can *count on* to keep your business rolling in high gear.

Air Express gives you all these advantages

World's fastest transportation method.

Special door-to-door service at no extra cost.

One-carrier responsibility all the way.

1150 cities served direct by air; air-rail to 18,000 off-airline offices.

Experienced Air Express has handled over 25 million shipments.

Because of these advantages, regular use of Air Express pays. It's your best air shipping buy. For fastest shipping action, phone Air Express Division, Railway Express Agency. (Many low commodity rates in effect. Investigate.)



Rates include pick-up and delivery door to door in all principal towns and cities

A service of
Railway Express Agency and the
SCHEDULED AIRLINES of the U.S.



HERCULES PUBLISHES NEW DATA ON NVX RESIN

New information about NVX, a water-miscible, neutral resin, for the foundry industry, is now available in leaflet published by Hercules Powder Company, Wilmington, Del. The leaflet cites advantages of NVX in green sand facing as determined in daily use by experienced foundrymen.

Included in the information is a summary of comments from foundrymen who have been adding one-half of one per cent NVX to their green sand facing for a period of six to eighteen months.

According to the foundrymen, some of the advantages obtained through the use of NVX are: sand of better flowability and improved working quality; better molds and better casting. NVX, they say, reduces appreciably the required number of jolts needed to obtain the same mold density, thus increasing the life of the jolt machine. It also permits more uniform ramming, and is particularly valuable for squeeze work where no allowance can be made for poor flowing sand, foundrymen reported.

CLADMETAL USED FOR GROUND PADS APPLIED TO TRANSFORMERS

A cladmetal for ground pads applied to electric power transformers is announced by American Cladmetals Company of Carnegie, Pa. Copper permanently bonded to steel by means of a process owned exclusively by the Carnegie company is the cladmetal used for this purpose.

The advantages of this cladmetal, a copper/SAE 1010 steel combination, include ease of handling and manufacturing where the transformer is required to comply strictly with NEMA specifications in sizes of 167 KVA or larger. A simple arc weld is all that is needed to apply the pad to the transformer case which insures a solid ground connection for the life of the transformer. The cladmetal pads can be cut to sizes and stocked for future use and thereby reduce the number of operations employed in present practice.

BRIQUETS CAN BE MADE FROM SUB-BITUMINOUS COALS

High-heating-value briquets can be made from the "slacks" or "fines" of sub-bituminous coals according to a brief review of this field released today by the Office of Technical Services of the U. S. Department of Commerce.

A research project on briquetting was conducted by the University of Wyoming, with financial assistance from O. T. S., to determine methods of increasing the value of some of the Rocky Mountain area high-moisture-coal deposits. Findings of the study indicate that profitable operation of briquetting plants near mine locations may be possible.

PB 99806, *Briquetting of Dried Low-Rank Western Coals*, is available from the Office of Technical Services, Washington 25, D. C., at \$2.25 per copy.

(Please turn to page 404)

3 Gallon Super Mistorizer



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place
to
hide

25 Ounce Mistorizer

INSECT KILLING: Vaposector is forced to penetrate everywhere, by highly efficient Mistorizers. Fogs completely enclosed areas up to 2,000,000 cubic feet. Permeates cracks, crevices, remote hiding places. Vaposector is a highly concentrated insecticide. Fast-acting. Odorless. Non-toxic. And economical — when used in a West Mistorizer. 1,000 cubic feet of space needs only one ounce to control flying insects; only two ounces to control crawling insects, as a West representative can easily demonstrate. Without charge.

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15



Tufts hand stitched into block cannot become loose.



Handle is easily adjustable to height of sweeper.



Steel bolt in handle prevents thread wear.



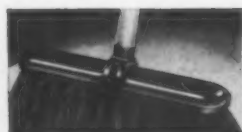
Long tufts give longer wear.

See Why

Speed Sweep

Is American Industry's No. 1 Sweeping Tool

The brush with the steel back



Steel back prevents splitting and chipping of block.



Tuft arrangement in narrow block provides "spring and snap."



MILWAUKEE DUSTLESS BRUSH CO.

530 N. 22nd Street • Milwaukee 3, Wis.

G. E. SHIPS NATION'S LARGEST MINE HOIST MOTOR

The largest mine hoist motor in the country from the standpoint of physical size has been shipped by General Electric's Large Motor and Generator Divisions to the Anaconda Copper Mining Company at Butte, Mont.

The giant 600-volt d-c motor, rated 3000 hp at 60 rpm, will drive an ore hoist at the Kelley Shaft, an important part of Anaconda's \$20,000,000 "Greater Butte Project" for the recovery of low-grade copper ore by the caving method. When installed, the motor will be direct connected to the hoist drums.



This motor can lift 12 tons of ore nearly half a mile a minute

In addition to the hoist motor, the G-E drive equipment includes a 2500-kw, 600-volt d-c generator driven by a 3500-hp, 514-rpm, 2400-volt synchronous motor; a generator exciter; complete hoist control; and switchgear-type starting equipment for the MG set.

The electric drive, G-E engineers said, will be able to hoist 12 tons of ore per trip at a rate of almost half-a-mile a minute. Operating at full speed it will be able to complete a trip from a depth of 4,335 ft. in slightly more than two minutes.

1 1 1

ALLIS-CHALMERS ISSUES STUDY ON INDUSTRY PROBLEM DRINKING

"The Problem Drinker in Industry," a 20-page booklet prepared by the Industrial Relations and Public Relations divisions of Allis-Chalmers Manufacturing Co., Milwaukee, Wis. sets forth the role of supervisory personnel in the company's program to help the alcoholic.

The booklet, enlivened by appropriate drawings, tells why people drink, explains improper approaches to the problem, gives the reason for Allis-Chalmers' interest in the matter and how it is being handled by the company.

Charts which supplement the booklet show that in 1947 and 1948 more than eight percent of 71 problem drinking employees' working time was lost through absenteeism. After the company's alcoholic counselor took over on March 15, 1949, the absentee rate fell below three percent, and the loss in wages of the 71 dropped from over \$23,000 in 1948 to about \$13,500 in 1949.

(Please turn to page 408)

ROLOCK

FABRICATED ALLOYS

HEAT AND CORROSION
RESISTANT



FURNACE BASKETS... Standardized for Economy

In one application after another Rolock job-engineered equipment has scored outstanding economies in heat-hour costs, handling costs, and equipment maintenance... with improved product quality.

The pit type furnace basket pictured above is Rolock's latest addition to the now lengthy list of cost reducing equipment. Completely fabricated, including bottom grid, these baskets and trays are steadily replacing heavier cast equipment. They are standardized in design for prompt shipment in a wide range of sizes and will handle your tonnage loads through repeated furnace cycles efficiently and with unusual economy.

NOW YOU GET 4 ADVANTAGES

1. Lower heat-hour equipment cost... longer service life with lower maintenance.
2. Greater furnace capacity... with reduced dead weight, heavier pay loads can be handled.
3. Lower fuel cost... with lighter baskets, heavier loads reach furnace temperatures in less time.
4. Improved quality... superior design permits more uniform heating... and quenching.

Write Rolock engineers for specific details of furnace baskets... and all types of heating and finishing alloy fabrications. Catalog on request.

Offices in: PHILADELPHIA • CLEVELAND • DETROIT • HOUSTON • INDIANAPOLIS • CHICAGO • ST. LOUIS • LOS ANGELES • MINNEAPOLIS

ROLOCK INC. • 1272 KINGS HIGHWAY, FAIRFIELD, CONN.

JOB-ENGINEERED for better work
Easier Operation, Lower Cost

6RL50

JUNE, 1950

Want Additional Product Information? See Page 19.

405

**WAGNER
MOTORS**

*...The choice of leaders
in industry*

Here's what you get in the **WAGNER Type RA MOTOR...**

the most simplified design to provide —

repulsion start

**HIGH STARTING
TORQUE** ... for quick,
easy starting and smooth
acceleration.

**LOW STARTING
CURRENT** ... to mini-
mize light flicker when
motor starts.



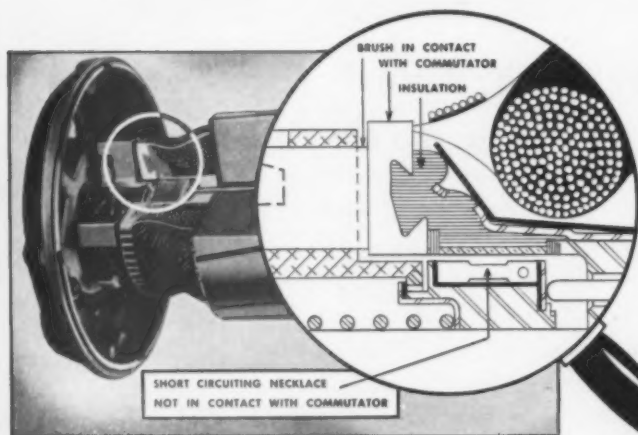
induction run

**HIGH OPERATING
SPEED** ... constant at
all operating loads, even
under overload.

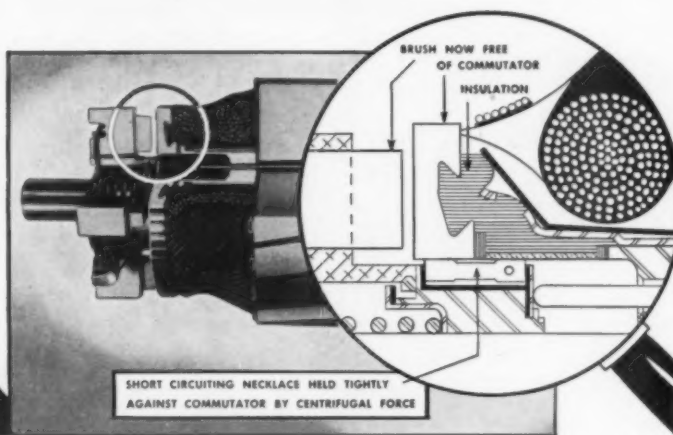
**FLAT EFFICIENCY
CURVE** ... over a wide
operating range.

Pioneered by Wagner more than half a century ago, the repulsion-start induction single phase motor is truly industry's "general purpose" motor because it combines the best features of two types of motors: the repulsion motor during the starting period and the induction motor while running at rated operating speeds. Today, the Wagner Type RA offers the most simplified, trouble-

free design available, and is still the standard by which all other single phase motors are judged. In the Wagner Type RA Motor you get low upkeep cost, minimum servicing, freedom from vibration and noise, and years of reliable service. Shown below are the basic principles of operation of this motor. Bulletin MU-185 gives complete details. Write for a copy.



Starting period—Short-circuiting necklace is not in contact with commutator bars. A governor spring holds barrel in starting position. Brush assembly completes selected circuits enabling motor to start as a repulsion motor.



Running period—Governor weights (actuating pushrods) have forced spring barrel forward until short-circuiting neck-lace connects commutator bars to short-circuiting ring, forming a "squirrel cage" to permit operation as an induction motor.

Wagner
Electric Corporation

EST. **WE** 1891

WAGNER ELECTRIC CORPORATION

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ELECTRIC MOTORS • TRANSFORMERS • INDUSTRIAL BRAKES
AUTOMOTIVE BRAKE SYSTEMS — AIR AND HYDRAULIC

BRANCHES IN 31 PRINCIPAL CITIES

60%

Saving in Man-Hours

made by this

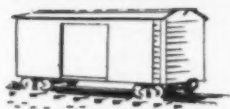
ELWELL-PARKER!

Here is a typical example of the big economies made by this E-P fork truck at the warehouse of a large grocery chain:

Roof-high tiering insures maximum use of every square foot of space . . . Fume-free electric power is ideal for food handling . . . This truck has needed only \$62 worth of replacement parts during 2 years of steady use.

THE JOB...

Moving 2000 Cases of food from
BOXCAR to storage in WAREHOUSE



PREVIOUSLY DONE BY...

8 MEN using 4-wheel TRUCKS



TOTAL MAN-HOURS REQUIRED 20


NOW DONE BY...

E-P TRUCK and 2 MEN



TOTAL MAN-HOURS REQUIRED 8

SAVINGS... 12 Man-Hours or 60%

Elwell-Parker trucks have developed notable *savings* in over 300 branches of industry during the past 44 years. To help you profit by this *unexcelled* materials handling experience, your near-by  man is at your service. The Elwell-Parker Electric Co., 4519 St. Clair Avenue, Cleveland 3, Ohio.

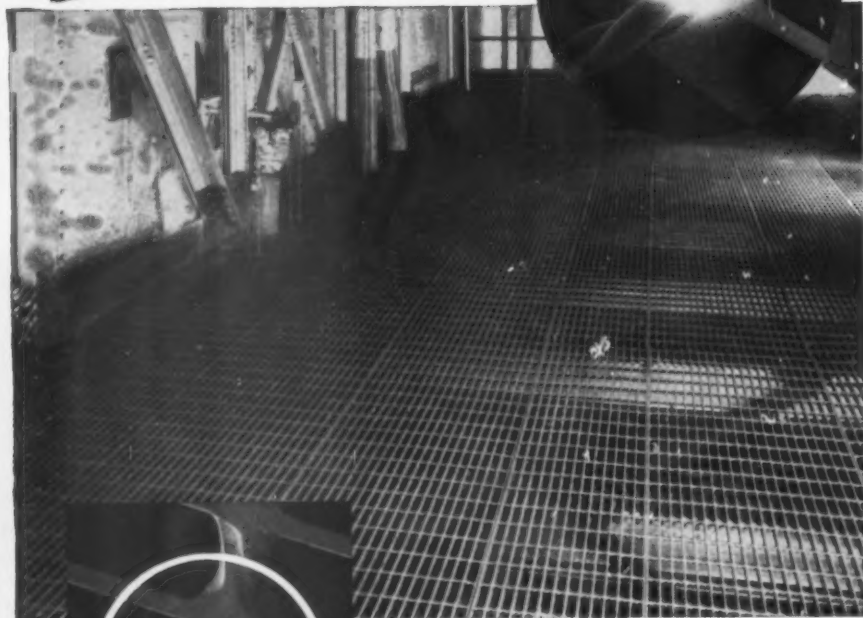


FREE BOOKLET on Scientific Materials Handling. Profusely illustrated. Ask for "Industrial Logistics" and name your product.

VISITORS TO THE SHOW ARE INVITED TO INSPECT THE ELWELL-PARKER PLANT

Electroforged into one piece . . .

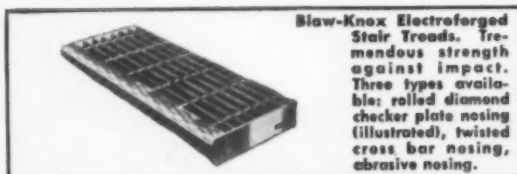
for **STRENGTH**



and **SAFETY**

NON-SLIP.. **the twist does the trick**

MAXIMUM safety and exceptional load bearing strength . . . that's the ideal combination you get in Blaw-Knox *electroforged* Steel Grating. Fabricated into one solid, permanently fused piece, each individual joint is electrically forged together in a union that is actually stronger than the surrounding metal! The twisted bar construction, with slightly roughened surfaces, gives a firm grip on shoe soles, makes slipping impossible even under wet, greasy or icy conditions. Write for Bulletin 2296 today.



Blaw-Knox Electroforged Steel Treads. Tremendous strength against impact. Three types available: rolled diamond checker plate nosing (illustrated), twisted cross bar nosing, abrasive nosing.

BLAW-KNOX DIVISION of Blaw-Knox Company
2075 Farmers Bank Bldg., Pittsburgh 22, Pa.

- Safe, sure footing
- Rigid strength
- Self-Cleaning — no sharp corners to clog
- Easily maintained
- Maximum open area for light and air
- Simple to cut and band for fitting around obstacles
- Adaptable to many uses — indoors or out

**WRITE FOR
BULLETIN 2296
TODAY!**

BLAW-KNOX ELECTROFORGED STEEL **GRATING**

FIRE HAZARD OF PAINTS AND CLEANING MATERIALS

Commonly used cleaning and painting materials include some materials of a flammable nature, and if the necessary precautions are not followed in their use, fire and life hazards of a serious nature may be introduced.

Household floor cleaning liquids, liquid waxes, paints and lacquers, paint removers, and liquid sandpaper are some of the substances in addition to liquids used for home dry cleaning or for removal of spots from clothing which need to be used with close attention to the necessary safety precautions.

The containers in which all these various liquids are bought from a store are usually marked, when the liquid is flammable, with such words as "Flammable" or "Keep Away from Flame." These words, however, may be in small print and not noticed by the user, or in some cases there may be failure to understand what these warning words really mean.

When a container of liquid is marked "Flammable" or "Keep Away from Flame" it means that the liquid gives off flammable vapors at ordinary room temperature. Whenever a can or bottle of such a liquid is opened vapors begin to come out the opening and when the liquid is spread or rubbed over a surface as paint or as cleaning liquid the vapors come off much faster. These vapors usually cannot be seen but as they flow or float away from the surface they mix with the air and may form a mixture with air that will burn or explode when ignited by any spark or flame.

Non-flammable Liquids Suggested

Paints and cleaning liquids which do not present a flammable vapor hazard can often be used in place of those which have this hazard. It is desirable to use the nonhazardous materials where possible to do so.

Where flammable paints or cleaning liquids are used, the fundamental safety precautions are briefly as follows:

- (1) Provide good ventilation to carry away the vapors.
- (2) Keep all flames, sparks and hot surfaces well away from the work.

The importance of these precautions has been shown in many fires. In one case workmen were applying a special paint to the interior of an open-top steel tank. When one of the workmen lighted a cigarette the tank filled with flame which lasted only a minute but killed three of the workmen and severely burned the fourth.

Straight gasoline represents about the extreme in flash fire and explosion, hazard of floor cleaning liquids but the hazard of other flammable cleaners although ordinarily somewhat less than gasoline may present a hazard similar to that of gasoline under just the right conditions. The vapor from one pint of gasoline can make 200 cubic feet of air explosive.

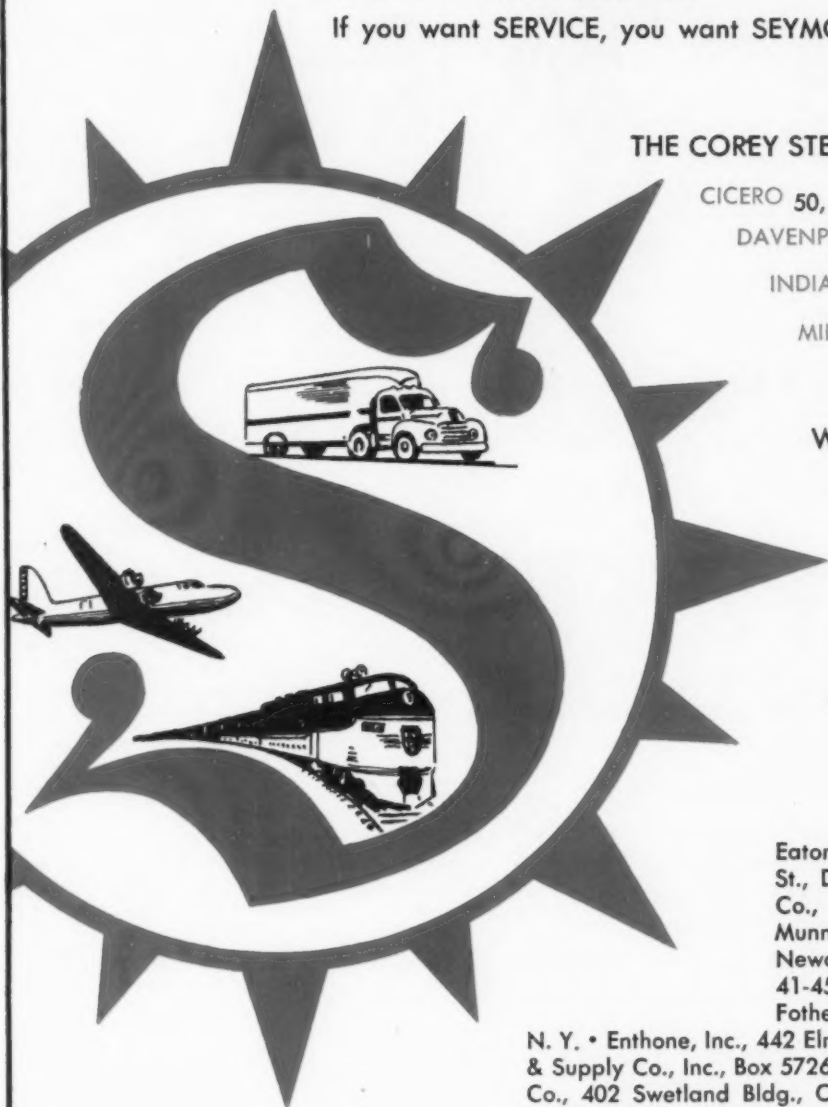
Paints and other coating materials in use are made of a great variety of substances, but insofar as the fire hazard is concerned the important thing is the

(Please turn to page 410)

SEYMOUR SERVICE AT ALL POINTS

NICKEL SILVER PHOSPHOR BRONZE NICKEL ANODES
. WELDING ROD whatever your requirements may be, specify
SEYMOUR for shipment from strategically located distributor warehouses.
Write us or consult with your nearest Seymour distributor for shipping
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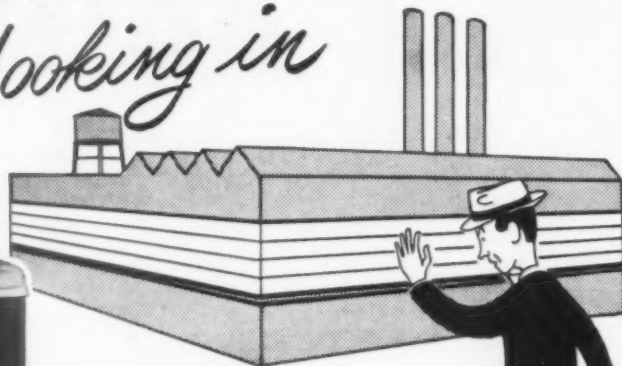
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SEYMOUR

NONFERROUS ALLOYS SINCE 1878

We're on the **OUTSIDE**
looking in



... yes, looking into your plant . . . and we find that if you are using Halsey Taylor Coolers and Fountains you have satisfied workers and better production! If you're not, you'd better write for our latest catalog, illustrating and describing the new 1950 Halsey Taylor Coolers and Fountains.



THE HALSEY W. TAYLOR CO.
WARREN, OHIO

HALSEY TAYLOR

Fountains and Coolers

F-2

GET THOSE WEED ROOTS!

GO TO THE ROOT OF YOUR WEED
PROBLEM WITH THESE DOLGE PRODUCTS



**KILL
WEEDS
HERE!**

Please write for descriptive literature explaining how these DOLGE products can best be used for your weeding requirements.

DOLGE SS WEED-KILLER

Where no vegetation whatever is desired. Penetrates deep down to plant roots and kills. Sterilizes the soil, preventing normal sprouting of wind-blown seeds. Weeding the thorough, modern chemical way eliminates backbreaking toil and saves the cost of many labor-hours.

E. W. T. SELECTIVE WEED-KILLER (2-4-D)

Highly recommended for maintaining beauty of lawn and fairway. Works its way down into the roots of brush, dandelion, plantain, poison ivy, ragweed, sumac and other obnoxious plants but does not injure most turf grasses.

The C. B. DOLGE Co.
WESTPORT, CONNECTICUT

(Continued from page 408)

liquid substance used as the solvent, vehicle or thinner. Linseed oil, turpentine, and mineral spirits (benzene) are used in ordinary paint. Some newer kinds of paints use mixtures of alcohols and other solvents. Acetone and amyl acetate (banana oil) are used in lacquers. Paint remover usually contains some benzol.

Benzene, benzol, acetone and naphtha present a hazard similar to gasoline. Alcohol (grain or denatured) and amyl acetate are in the next lower grade as to hazard. Kerosene and turpentine are in a still lower grade as to hazard; they are much safer liquids to use than the others mentioned because they do not give off flammable vapors unless heated to a temperature of 90 to 120 Fahrenheit or higher.

Carbon tetrachloride is a good solvent and cleaning liquid for some uses. It has the advantage of being nonflammable, but its vapors have a poisonous or toxic effect when breathed so that it should be used only where good ventilation is provided. Benzol vapors are also toxic and it should be used with similar precaution.

Rags containing paint or linseed oil or almost any vegetable, animal or fish oil are subject to spontaneous heating under certain conditions and may start fires by themselves. They should be placed where they can dry freely or be placed in covered metal cans or burned.

—National Board of Fire Underwriters

ZINC IN DIE CASTINGS

By R. G. Kenly
Manager, Metal Division
The New Jersey Zinc Sales Co.

Before arriving at any conclusion about the future of zinc die castings, we should properly take time to explore their characteristics and determine if these properties of zinc die castings make them useful citizens in the world of material things. If they are useful, then we must decide if their use is restricted to a narrow field of specialty items or if they are doing a good job as parts of the things which mankind uses in everyday life. If the latter is the case, it seems reasonable to assume that they will continue to find favor, and their numbers increase.

As many of you know, the die casting process converts molten metal into a solid casting in a matter of seconds. One short stroke of a plunger and a zinc die casting is made. As a matter of fact, if the castings are small, not one but dozens may be made by this one plunger stroke, and frequently these are finished castings, requiring no further work to be done on them.

What are the characteristics of the castings made by this process and from this metal, zinc? First, they have the characteristic of being exact duplicates of each other when made in the same die cavity. The first casting will have exactly the same measurements as the second and the hundredth and the hundred

(Please turn to page 412)

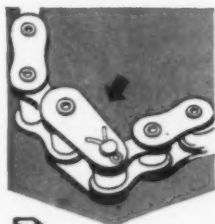
WHERE YOU SEE this ...
YOU SEE

*Longer Chain Life, Lower Chain Cost,
Easy Adjustment, Faster Service!*

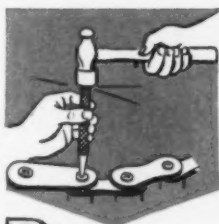
This distinctive link marks the new "BA" . . . Baldwin Assembly . . . riveted roller chain. And it's the mark of long, low-cost service.

The new "BA" assembly roller chain gives you all the advantages of riveted roller chain . . . longer life . . . even greater ease of field assembly and disassembly than with old style detachable roller chains . . . and in single strand, lower cost.

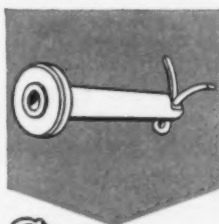
HERE'S HOW SIMPLE IT IS TO TAKE APART THIS ROLLER CHAIN!



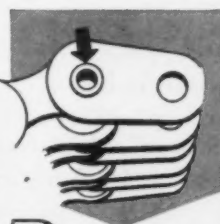
A The single pin connector is the heart of the "BA" assembly and is readily identified by its distinctive shape. One pin in this link has a cotter on one end; the other end is spun over a washer. The other pin is fully riveted to the adjacent link, thus assuring the assembly of the superior life of riveted chain.



B To take the chain apart, simply remove the cotter on the single pin connector link and drive out the pin. Pin is a slip fit through the chain except for a milled flat on the cottered end which is fitted into a special hole in the connector plate. There is no danger of destroying fits or damaging parts with this chain.



C The single pin connector of the "BA" assembly fits snugly into place . . . even though it is a slip fit through virtually the entire link. The washers spun over one end of the pin and the milled flat on the cottered end that is fitted into the special hole in the connector plate, plus the cotter, hold the pin firmly in place.



D An important advantage to you is the fact that the other end of the single pin connector link is firmly riveted to the adjacent link. When the single pin connector is removed, this riveted pin holds the chain parts together, thus keeping plates in line and preventing them from falling out, simplifying assembly.

For all the facts on "BA" assembly, write Chain Belt Company, Baldwin-Duckworth Division, 366 Plainfield St., Springfield 2, Mass., and ask for Bulletin 50-6.



BALDWIN-REX
ROLLER CHAINS

a complete line from 1/4-inch to 2 1/2-inch pitch



"THE PROOF . . . of the Pudding"



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the ultimate user

We are specialists in coil winding. For 32 years Coto-Coil has supplied leading manufacturers with coils for many uses. To meet temperature extremes . . . humidity . . . vibration . . . shock. Precision windings for delicate controls.

We have the engineering ability, a modern plant, latest equipment and skilled personnel to produce coils that are "right" . . . to assure delivery and to satisfy as to price.

*Send Us Your Specifications
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BOBBINS
ACETATE INTERLEAVE (Coalesced)
PAPER INTERLEAVE
COTTON INTERWEAVE
TAPED FORM WOUND
UNIVERSAL SINGLE or
MULTI-PIE CROSS WOUND

COTO-COIL CO., INC.

COIL SPECIALISTS SINCE 1917

65 PAVILION AVE.
PROVIDENCE 5, R.I.



(Continued from page 410)

thousandth. They may be as simple in shape as an ash tray, or they may be as complicated as an automobile carburetor; each one will be interchangeable with its duplicate. Next, these castings will be sturdy, no brittle things to be readily snapped with the fingers, but tough enough to act as parts of automobile shock absorbers and railway air brakes. They will be smooth of surface, readily plated to a pleasing finish with chromium, or colored with bright shiny enamels and lacquers. They can be readily drilled and tapped for screws, and will be ductile enough so that edges can be turned over to rivet them to other parts.

Where will we find these zinc die castings? Will we have to look for them in laboratories as parts of expensive and seldom-seen scientific instruments, or will they be about us in our everyday living? We shall find them in the radios and television sets in our homes, in clocks and cigarette lighters, in the locks on our doors and our cars, in can openers, ice-crushers and food mixers in our kitchens, and as faucet handles and soap dishes in our bathrooms. They will serve in the door handles, carburetors, fuel-pumps, windshield wipers and instrument panels of our automobiles, as parts of washing machines and wringers, in household tools, in motor cases, in cameras and toys, as zippers on our clothes, and in many other things of everyday use. Zinc die castings are truly useful citizens, serving us all in many ways.

Establish Trend of Use

Having established by these examples that zinc die castings have useful characteristics and a record of performance in many common articles, let us examine the figures for the consumption of zinc in their manufacture and see if we can establish any trend of use.

The consumption figures I shall quote will be pounds of zinc die castings per capita per year. This is done for two reasons; first, because the figures are easier to remember, and second, because the use of zinc die castings is so widespread that any change in population is very apt to affect the consumption of zinc for this purpose.

In 1926 the per capita consumption of zinc die castings was one-quarter pound. By 1936 it had risen to about one and two-tenths pounds, and in 1949 it was nearly two and three-quarter pounds per capita.

If the figures for each year from 1926 to 1949 are plotted on semi-log paper, it is possible to draw through these points a smooth curve from which some deductions can be made about the rate of change in consumption per capita. As might be expected of a growing industry, like a growing child, the rate of growth was very fast at first. This rate is now lessening, but the consumption per capita is increasing, as I pointed out before. Let me put that another way: The consumption per capita is increasing, but the rate of increase grows less each year.

(Please turn to page 414)



...easier and better the WeldELL way

For the *practical* facts about pipe welding fittings go to the *practical* men...the welding foreman; the pipe fitter foreman; the construction superintendent... who have used all kinds and know the field.

They will tell you that the job moves faster and costs stay down when WeldELLS and other Taylor Forge fittings are used

- ✓ ...because of the precision quarter markings, the sized end tangents, the accurate machine tool bevels and lands.

They will tell you that the job maintains momentum easier, smoother

- ✓ ...because of the completeness of the line and better identification markings.

They can tell you...at least, design men will...that the *finished* job is better

- ✓ ...because it is done with fittings that are engineered down to the last detail to meet all requirements of *every* job.

Yes, "WeldELLS have everything"...to make it *easier* ...*better*. Coupon brings lots of facts.

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517-0650



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Extra Fine WIRE CLOTH

This NEWARK EXTRA FINE WIRE CLOTH is available in phosphor bronze, Monel, nickel, and stainless steel, in meshes up to #400 — yes, in Monel 400 meshes in each direction (160,000 holes per sq. in.).

Years of manufacturing experience in the wire cloth field (since 1877) is your assurance of the accuracy of NEWARK WIRE CLOTH weaving and quality of product.

NEWARK
for **ACCURACY**

**THE FINE
WIRE CLOTH
of**

Accuracy

**Newark Wire Cloth
COMPANY**

346 VERONA AVENUE
Newark 4, New Jersey

(Continued from page 412)

According to a forecast made by the Bureau of the Census, the population of the United States is expected to increase during the next ten years by about eight million persons. If for some reason, now unforeseen, the consumption per capita of zinc for die castings, should not continue to increase during that period, but remain constant at the 1949 figure of two and three-quarter pounds, the expected population increase should be some assurance that a good tonnage of zinc will be needed. If someone more venturesome than I should state that the average annual per capita consumption of zinc for die castings during the next ten years would be greater than that for the past ten, he might stand an even chance of being right.

The use of aluminum as a die casting material increased rapidly during the war, and is still increasing, and many interested persons have expressed the thought that it might supplant zinc as the leading die casting metal. This will probably depend upon two factors: The price ratio between zinc and aluminum, and the development of a commercial process for plating aluminum at a competitive cost. The increasing recognition of die casting as a fabricating process can well offer opportunity for growth in both zinc and aluminum fields.

Zinc Favored Over Aluminum

In 1948, figures taken from "Facts for Industry," published by the Department of Commerce, indicated that the ratio between zinc and aluminum, expressed in pounds of die castings shipped, was 3¾ for zinc to 1 for aluminum. That was the year of high zinc prices, when Prime Western zinc advanced from 10½ cents to 17½ cents per pound. In 1949 the ratio was 4¼ for zinc to 1 for aluminum, an actual increase in favor of zinc, and a reflection of the drop in the price of this metal.

In 1949 something occurred which is bound to have a very beneficial effect on the use of zinc die castings. I refer to the adoption of the Certified Zinc Alloy Plan for Die Castings by the American Die Casting Institute, a trade association composed of jobbing die casters; i.e., die casters who produce castings for others rather than for their own use. Like the Seal of Quality of the American Zinc Institute, the Certified Zinc Alloy Plan is intended as a measure of quality. Members of the American Die Casting Institute who subscribe to this plan agree to produce zinc castings to meet a composition specification similar to that adopted by the A.S.T.M., which is recognized as a standard. The subscribing members further agree to analytical checks on their castings by a selected and competent laboratory. Castings produced under this Plan are identifiable by a distinguishing mark.

The Plan has been in operation for just about a year, and provides the skeptical purchasing agent with a means of assurance that he can buy zinc die castings made to time-tested specifications.

(Please turn to page 416)

You Can Cut Today's High Production Costs with

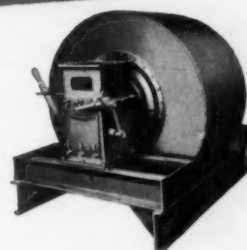
STURTEVANT

EQUIPMENT



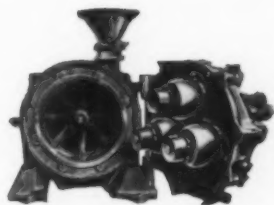
AIR SEPARATOR

For separation of fines to 325 mesh and finer. Increases output from 25% to 300% . . . lowers power costs by 50%. For years, this separator has been the standard in the cement industry.



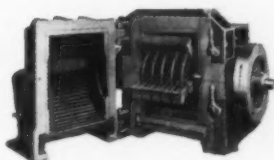
DUSTLESS BLENDER

Four-way mixing action assures a thoroughly blended product. Open-door accessibility permits easy cleaning. Available in many mixing capacities for 1/4 ton per hour and up.



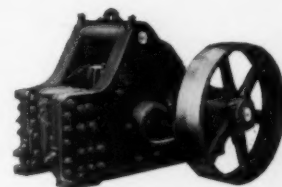
RING-ROLL MILLS

For medium and fine reduction (10 to 200 mesh), hard or soft materials. Very durable, small power. Operate in closed circuit with Screen or Air Separator. Open-door accessibility. Many sizes. No scrapers, plows, pushers, or shields.



SWING-SLEDGE MILLS

For coarse and medium reduction (1" to 20 mesh). Open-door accessibility. Soft, moderately hard, tough or fibrous substances. Built in several types and many sizes.



JAW CRUSHERS

For coarse, intermediate and fine reduction of hard or soft substances. Heavy or light duty. Cam and Roller action. Special crushers for Ferro-alloys. Several types, many sizes.

Sturtevant equipment, such as illustrated, helps you overcome high labor and production costs by increasing output.

In addition, their rugged construction assures long life with minimum maintenance. It will pay you to investigate these machines. Write for information.

STURTEVANT MILL COMPANY
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CONVEYORS • MECHANICAL DENS and EXCAVATORS • ELEVATORS • MIXERS

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Gentlemen:
Please send me your catalog. I am especially interested in _____

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ASK THESE 7 QUESTIONS BEFORE YOU PICK CHEAPEST WAY TO SHIP

"Rates are only part of the answer to What is your Cheapest Way to Ship? To get the complete answer, ask these 7 questions—



Believe me, after my customers ask these questions, they always specify Railway Express."

—says John Heath, Spokane,
3 years an Express Man

For the complete answer to your shipping problem—

ALWAYS ASK

THE EXPRESS MAN!



- 1 Is the service dependable?**
- 2 Is it fast?**
- 3 Is there a single all-inclusive charge?**
- 4 Is pickup and delivery made in all cities and principal towns?**
- 5 Is there only one responsibility for any shipment?**
- 6 Is a receipt given at both starting point and destination?**
- 7 Is valuation allowance liberal?**

(Continued from page 414)

I do not mean to infer that castings made by die casters not subscribing to this Plan are not reliable or on-grade; such is far from the case. Most zinc die castings produced today are conscientiously made to approved specifications. However, there are over 400 jobbing die casters in this country, and the purchasing agent who does not know one die caster from another is likely to be hard put to make a choice. Under these circumstances, the Certified Zinc Alloy Plan offers him an assurance of dealing with die casters who have gone on record that they will produce castings made to a definite specification. It is estimated that the production of the licensees operating under the Certified Zinc Alloy Plan amounted to about 80 per cent of the total 1949 production of jobbing die casters. The American Die Casting Institute is to be congratulated for having taken this forward step in providing a mark of quality for zinc die castings as the American Zinc Institute has provided, in a similar fashion, the Seal of Quality for zinc-coated steel sheets.

(Address presented at the 32nd Annual Meeting, American Zinc Institute, Inc., held recently in St. Louis, Mo.)

1 1 1

NEW COATING FOR PETROLEUM AND CHEMICAL TANKS

A new plastic coating for petroleum and chemical tanks has been announced by the Glidden Company, 11001 Madison Ave., Cleveland, Ohio.

Called Vinyl-Cote, the new coating is an impervious tank lining which does not blister and which eliminates the peeling common to old-style plastic coatings. The field tests show that it combats corrosion and withstands sour crude, salt water, alkalis, acids and corrosive gases and fumes.

Vinyl-Cote's important new properties are derived from the vinyl copolymer resins used in its production. They give it wide flexibility and amazing resistance to caustic, sour crude and most acid solutions. The new coating also is almost totally unaffected by oils, greases and petroleum solvents and stands up well against aromatic solvents.

However, Glidden technicians point out that Vinyl-Cote is not specified for some applications. It is readily soluble in the ketone and ester group of solvents and its resin films will not withstand operating temperatures above 180 degrees Fahrenheit.

Vinyl-Cote is a five-coat system, with each coat a different color, and should be carefully applied under the proper conditions. Glidden specifies the exact thickness of each coating, although this is simplified through the use of different colors. When the coat being applied completely covers the previous coat, the proper thickness has been attained.

The first test applications of Vinyl-Cote were made nearly three years ago in actual tanks in the Gulf Coast and mid-western oil fields, and today the coatings are still in excellent condition.

ACCO



**TRADE
MARK**

*...a Name to Remember
when Purchasing for Profit*

Names and trade-marks are important to buyers . . .

because they stand for the responsibility for quality. • Each product listed here has a name that is well-respected in its field. Behind each is another name that assures you of uniformly dependable quality and service — **AMERICAN CHAIN & CABLE COMPANY, INC.** • To better acquaint buyers with ACCO Products, we shall be glad to send a compact booklet which gives a more detailed list. Ask for **DH-509**.

AMERICAN CHAIN . . .

Weed Tire Chains, Welded and Weldless Chain. ACCO Registered Sling Chains
AMERICAN CHAIN DIVISION



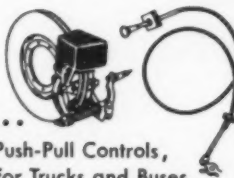
TRU-LAY Preformed WIRE ROPE . . .

ACCO Registered Wire Rope Slings
Crescent Non-Preformed Wire Rope
AMERICAN CABLE DIVISION



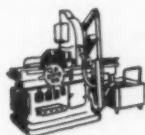
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Wet Abrasive Cutting Machines
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FORD HOISTS . . .

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ACCO

**FORD CHAIN
BLOCK DIVISION**



LAY-SET Preformed WIRE ROPE . . .

Nonparell Non-Preformed Wire Rope

HAZARD WIRE ROPE DIVISION



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MANLEY AUTOMOTIVE EQUIPMENT . . .

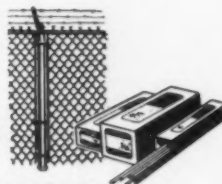
Jacks, Presses, Wrecking Cranes, etc.
MANLEY DIVISION



PAGE CHAIN LINK FENCE . . .

Welding Wire, Shaped Wire, Manufacturers' Wire

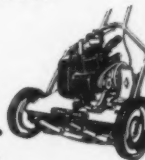
PAGE STEEL & WIRE DIVISION



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Power and Hand Mowers

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Bronze, Electric Iron & Cast Steel Valves and Steel Fittings

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Wright Hand Hoists, Speedway Electric Hoists. Cranes, Hydraulic Presses

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relays?

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SALES ENGINEERS IN PRINCIPAL CITIES

EXPORT:
2020 ENGINEERING BUILDING
CHICAGO 6, ILLINOIS

Planning — Purchasing — Production Cooperation

(Continued from page 111)

and planned by our engineering de-
partment. A bill of material is pre-
pared and forwarded to the pur-
chasing department accompanied by
the original estimate made by the
estimate department on each par-
ticular job. There are many items
on these bills of material that we do
not carry in stock which necessarily
have to be purchased.

When a buyer receives a bill of
material it is his job to analyze each
item to be purchased, and endeavor
to reduce costs. Many times he
recommends to engineering a
change in size, gauge or quality of
material or a substitution that either
reduces costs, improves the prod-
uct, or both. If this is acceptable
to engineering, that department
makes out the necessary papers
authorizing the change and our
buyers proceed to make the pur-
chase.

The buyers are required to report
to the director of purchases once a
month, giving job number, prices
used by estimating, purchase price
and ultimate saving. These reports
indicate what the buyer is accom-
plishing. Should a question arise as

(Please turn to page 420)



Herbrand

PRECISION

DROP FORGINGS

... any size or shape
up to 200 lbs.

Whatever your requirements
in forgings, Herbrand is your
most faithful source of supply
... as it has been for hun-
dreds of industries since 1881.
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FREMONT, OHIO

GREAT SLEEPS IN HISTORY

Snow White



...was the little girl who
slept and dreamed of
Wonderland. *Slumber-
land* is the favorite
dream of over a quar-
ter of a million guests
who annually rest on
those wonderful, cloud-
comfortable beds at

CLEVELAND'S HOTEL HOLLENDEN

ROBERT P. JOYCE, GENERAL MANAGER

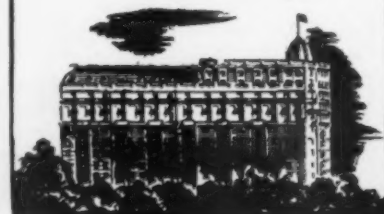


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Hotel Raleigh in the heart of of-
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quarters for all tourists and busi-
ness people. 400 immaculate
air-conditioned rooms, excellent
cuisine, and the famous Pall
Mall Room. Write today for our
booklet or HONEYMOON bro-
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COPPER ALLOY BULLETIN

REPORTING NEWS AND TECHNICAL DEVELOPMENTS OF COPPER AND COPPER-BASE ALLOYS

Prepared Each Month by BRIDGEPORT BRASS COMPANY "Bridgeport" Headquarters for BRASS, BRONZE and COPPER

Bridgeport's Indianapolis Mill Ties in More Closely with Industrial Midwest

The selection of Indianapolis as a logical site for Bridgeport's western mill was based largely upon its strategic location. Situated in the center of the midwest industrial empire, it forms the hub of a circle whose 500-mile radius sweeps through the largest and busiest industrialized districts in the world. By over night or two-day deliveries by truck or fast freight, its products promptly reach the great metal working districts such as Detroit, Chicago, Cleveland, Pittsburgh, St. Louis, Cincinnati, Milwaukee, Grand Rapids, Louisville, Columbus, Dayton and many others.

As plants go, Bridgeport's Indianapolis mill is one of the largest in the country. Its 817,000 square feet of working space is all on one floor, under one roof. It sits on a 90-acre plot,

with plenty of room for expansion.

Now An Integrated Mill

The Indianapolis mill today is a far cry from the plant which was acquired from the War Assets Administration in 1947. Much new equipment and trained personnel have been added in order to convert this huge plant into an integrated brass mill. It now makes a wide range of commercial sizes and alloys of brass, bronze, and copper in sheet, rod and tubing.

Its equipment is of the finest in the industry — exceptionally large electric furnace capacity, two continuous casting furnaces for making rod billets, and ample mechanized conveyors and electric cranes.

The Rod Mill has a 3850-ton extrusion press and a number of long, powerful draw benches capable of produc-

ing a variety of shapes and sizes of rod.

The Rolling Mill has a modern, remote-controlled hot mill capable of rolling 2,000-lb. bars of brass or copper 26 inches wide. New finishing rolls, slitting facilities and bright annealing furnaces installed within the past two years have greatly increased the range of sizes and gauges.

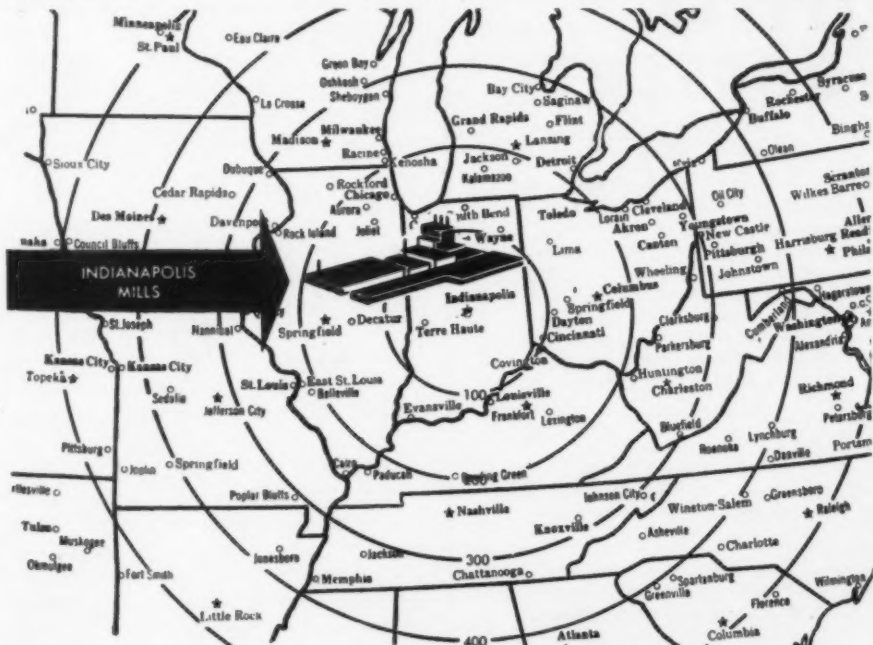
The Tube Mill was set up in recent months with extrusion facilities, draw benches and annealing equipment. Copper water tubing in straight lengths and coils for the building field and miscellaneous brass tubing are produced in sizable quantities.

Metal Designed for Exacting Requirements

Since precision fabrication on a mass production scale calls for brass mill products of exacting physical properties, close cooperation is given to fabricators in the form of help from the Indianapolis laboratory, which is manned by experienced metallurgists. All casting and mill processes are under laboratory control to meet exacting specifications.

Although Indianapolis mill has shown remarkable progress since it was purchased by Bridgeport Brass Company, its potentialities have hardly been scratched. With the passing of time this modern mill is tying in more and more closely with the great industrial companies that it serves.

Naturally, Indianapolis is backed up by the Bridgeport mill to produce and ship any item or volume that it is not in a position to make. To take care of emergency requirements and small orders that do not warrant the necessary delay involved in mill processing, large stocks of Ledrite free cutting brass rods are maintained at the Indianapolis mill. Comprehensive stocks of sheet, rod, wire and tubing are also carried in our warehouses in Chicago, Cleveland and St. Louis to serve the midwestern area. These warehouses also have equipment for slitting wide metal to narrower widths from stocks carried in our own warehouses and those of our customers.



BRASS • BRONZE • COPPER • DURONZE — STRIP • ROD • WIRE • TUBING

MILLS IN
BRIDGEPORT, CONNECTICUT
INDIANAPOLIS, INDIANA

In Canada:
Noranda Copper and Brass Limited,
Montreal



BRIDGEPORT BRASS COMPANY
BRIDGEPORT 2, CONNECTICUT

Established 1865

"Bridgeport" District Offices and Warehouses in Principal Cities



Service is our real stock in trade!

Service is a word that's used — and abused — too often. At American it's an honest fact! We make top quality tubular and split rivets. But it's the service we have been able to render that explains why so many of the country's foremost manufacturers "buy American." We started with many of our good customers when unforeseen production loads called for more rivets, quick. We'd like to serve you.

**Tubular and Split Rivets
... of all metals ... for
all industrial applications.**



AMERICAN RIVET COMPANY
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849 N. Kedzie Ave., Chicago 51, Illinois

for STAMPINGS ... Better see BOSSERT!

EXPERIENCE

For over fifty years Bossert has served leaders in a wide range of industries, producing pressed metal parts and assemblies for home appliances, electrical equipment, furnaces, water heaters, tractors, business machines, sink basins, farm and automotive accessories, etc. For engineering ingenuity acquired through experience

BETTER SEE BOSSERT!

KNOWLEDGE

The "know how" that Bossert has acquired over many years in redesigning and converting to stampings is available to you. Our Development Department will gladly examine your product, suggest constructive redesigning ideas, and submit quotations. If you use stampings now, or should use stampings in your product

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FACILITIES

200,000 sq. ft. floor area, over 80 presses of all types, ranging from 15 to 1600 tons; hot or cold drawing, (All Metals), up to 3/4" thick; capacity for deep drawing 54" diameter x 18" deep. If you are looking for a preferred stamping source

BETTER SEE BOSSERT!

Assembling and finishing of all types. Welding, gas and electric — atomic hydrogen, stitch and seam.

Blanking, forming, drawing and heat treating. Coining, sizing, and close tolerance production.

The BOSSERT Company

A Division of THE TIMKEN-DETROIT AXLE COMPANY

UTICA 1, NEW YORK

Planning — Purchasing — Production Cooperation

(Continued from page 418)

to the importance of purchasing and its contribution to company welfare as an important member of the management team, we have something to stand on. Following are a few instances of what we have done along these lines:

1—We purchase a considerable amount of tubing that would amount to approximately \$11,000.00 a month. We recommend tubing that is equally as good, in fact of equal quality, that would cost around \$9,000.00, making a saving of about \$2,000.00 per month.

2—We recommended a substitute insulation which was better than what we were using and reduced the cost of this purchased item by about \$1,600.00 a month, besides a change in method of packing which saved double handling and double inventories.

3—We recommended change in type of coils being used. The new coils gave better performance at a reduction in cost per month of \$3,700.00.

4—We recommended a change in design of a combustion chamber with an ultimate saving in cost, making it an easier product to handle in the field with less breakage, and saving of freight due to less weight.

5—We recommended a change in the type of welding machine of which we use many. As a result we are now gradually replacing all our old equipment with a new and up-to-date type, with a saving in 12 months of half the purchase price of a new machine in power consumption alone plus a 95% reduction in maintenance.

6—We were changing our coal fired boilers to oil and received quotations from outside engineers. Their recommendations would have cost us in the neighborhood of \$40,000.00. Prevailing upon management to authorize Purchasing to make further study of the proposed change, we were able to make the change-over at a cost of \$11,000.00, utilizing much of the equipment already in use which was in excellent shape.

The foregoing cite a few examples of what is being accomplished by our purchasing department.

The question may be raised, "Are we stepping on someone's toes?" In the beginning there was such a

(Please turn to page 422)

Announcing UDYLITE *and* STEVENS CONSOLIDATION

65-Year-Old Company Becomes Subsidiary of The Udylite Corporation

The Udylite Corporation has acquired the entire capital stock of Frederic B. Stevens, Inc., and its wholly owned subsidiaries—the Mitchell Engineering Company of Springfield, Ohio, and Frederic B. Stevens of Canada, Ltd., a Dominion Corporation.

The merging of these two old firms—each a leader in its chosen field—will add to Udylite's famed plating products and solutions, the Stevens machinery, machine tools, equipment and compositions for plating, buffing and polishing, foundry supplies, face brick and glazed tile.

For a quarter century, The Udylite Corporation has pioneered techniques, equipment and processes for a better way in plating and finishing.

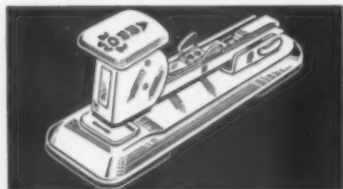
The Stevens background, personnel and products round out a Udylite service to the durable goods industries that ranges from conversion of raw metal in the foundry to highly polished surfaces of finished, utilitarian units.

Stevens factories and warehouses in Buffalo, New York; New Haven, Conn.; Springfield, Ohio; Windsor, Ontario, and two plants and a laboratory in Detroit—as well as the Stevens sales staffs in Cleveland, New Haven, Indianapolis, Buffalo and Windsor, will offer Udylite customers additional service points.

The scientifically trained and integrated Udylite-Stevens technical sales staff will bring to American industry a new conception of "Metal Magic."

The Udylite Corporation, Detroit 11, Michigan

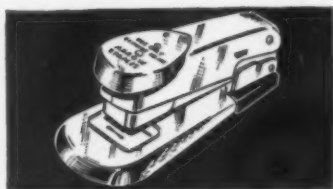
YOU CAN BE SURE WITH *ARROW*



#202 STANDARD STAPLER

Precision built stapler and tacker for the executive. All steel construction with chrome finish. Fastens up to 40 sheets of paper. Loads 210 standard staples $\frac{1}{2}$ " x $\frac{1}{4}$ ". Temporary and permanent stitch.

Price \$5.00



#105 STANDARD STAPLER

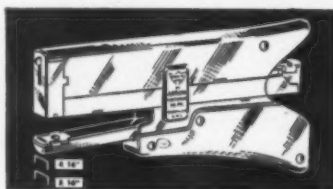
Streamlined beauty with bulldog performance. Stapler, Tacker, and Plier. All steel construction with chrome finish. Temporary and permanent stitch. Fastens up to 40 sheets of paper. Loads 105 standard staples.

Price \$3.50

P-22 HAND STAPLER

The heavy duty industrial plier that "reaches into hard to-get-at places." Ideal for tagging, labeling, wrappings, sealing bags, containers, and boxes. Same machine takes $\frac{1}{4}$ " and $\frac{5}{16}$ " staples. Loads 150 staples.

Price \$6.00



Arrow precision built products are constructed of the finest materials to assure smooth performance and long life. Where economy counts and you want the best — Arrow can deliver.

Slightly higher in the West and Canada

Buy from your dealer or order direct:

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30-38 MAUJER STREET Dept. P BROOKLYN 6, NEW YORK

Planning — Purchasing — Production Cooperation

(Continued from page 420)

feeling. However, this has been dissipated as we have proven to the various department heads that we are trying to help them solve their problems, so that they in turn can do a better job on cost reduction and performance. We make it a point to collaborate with each one concerned on every phase of a problem before definite action is taken. In other words we have endeavored to sell ourselves. I believe we have accomplished this, with management backing us. Each department head appreciates our efforts and is more than willing to cooperate with us.

The one function of purchasing that seems to be insufficiently exercised, is that of cooperation by the purchasing department with the engineering and operating departments. There are too many excuses, mostly lame ones, as to why such cooperation is lacking. Purchasing has the opportunity to overcome this by proving to operating and engineering departments, what it can do for them, and by demonstrating to management how Purchasing can contribute to profits.

RED STREAK Gummed Tape

Only gummed tape gives you
all FIVE
ADVANTAGES
your packages should have

Seals Tightly

and holds fast. Keeps dust, dirt, and moisture out . . . has no sharp edges . . . holds perfect package shape. Red Streak Tape assures you of the best possible package under all conditions.

1. Seals tightly

2. Re-enforces as it seals

3. Safer to handle

4. Easier to open

5. Costs less-

No other form of closure gives so much for so little!

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sample roll!

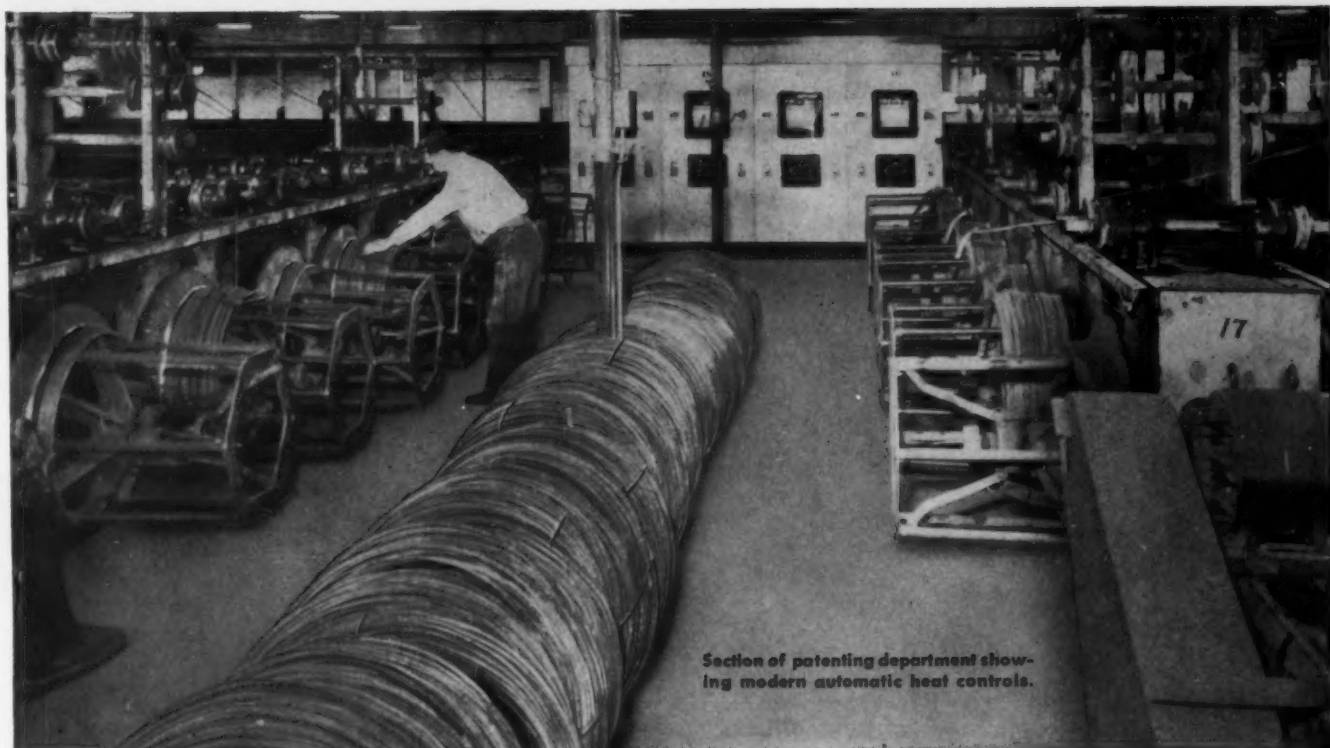
The Brown-Bridge Mills, Inc.

Dept. P-506, Troy, Ohio

Those Gumming Specialists



SEAL IT RIGHT WITH GUMMED TAPE



Section of patenting department showing modern automatic heat controls.

wire control *to save you money!*

• The accuracy with which your wire specifications are met, *and held*, quite naturally has an important bearing on the cost, speed and quality of your production. That's why you can profit by National-Standard's facilities and exceptional experience in producing fine wire of many metals and alloys for exacting needs.

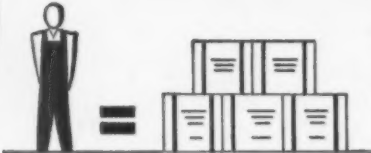

Here, all phases of wire processing: . . drawing, cleaning, heat treating, plating, finishing . . . are controlled to a degree and accuracy never exceeded, not often equalled. It's a firmly rooted National-Standard policy that can save you time and money.

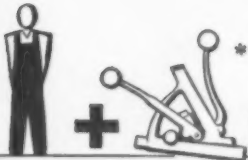

Remember, too, another National-Standard policy that can work to your advantage—highly qualified engineering service in the development and application of special wire to solve special problems. As always, it's yours for the asking.



DIVISIONS OF NATIONAL-STANDARD CO.

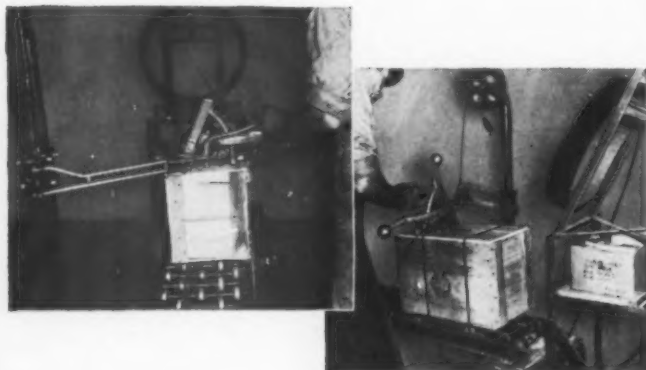
ATHENIA STEEL..Clifton, N. J.....	Flat, High Carbon, Cold Rolled Spring Steel
NATIONAL-STANDARD..Niles, Mich.....	Tire Wire, Fabricated Braids and Tape
WAGNER LITHO MACHINERY..Jersey City, N. J.....	Lithographing and Special Machinery
WORCESTER WIRE WORKS..Worcester, Mass.....	Round Steel Wire, Small Sizes

300  = 
more cases packed per day

 = 
— at $\frac{1}{3}$ lower cost!

This manufacturer found that one man *plus* the Stanley *ACE STRAPPING TOOL not only upped packing rate from 250 packages strapped a day to 550—also freed two other shipping room employees for more productive work.

You can't argue with facts and figures like these *proving* how the Stanley Steel Strapping System cuts shipping costs to the bone. Stanley Steel Strapping is quick and easy to apply—gives greater protection to goods in transit—makes important savings in man-hours and materials. Get full details on the savings it can make in *your* shipping department now. Write The Stanley Works, Steel Strapping Division, 144 Lake Street, New Britain, Connecticut.



STEEL STRAPPING AND CAR BANDING SYSTEMS

STANLEY

Reg. U.S. Pat. Off.

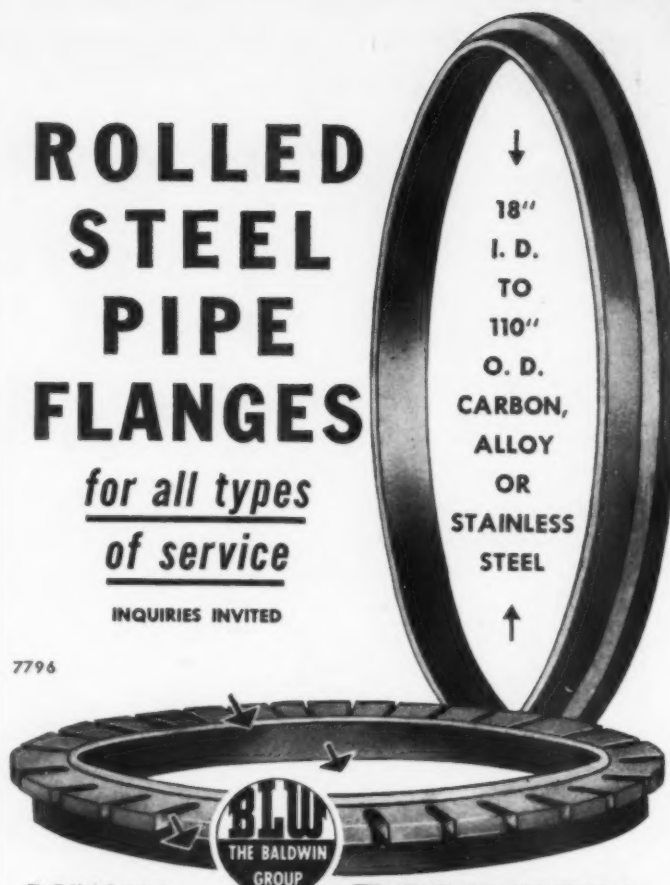
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ROLLED STEEL PIPE FLANGES

*for all types
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"EASY-TITES"



Outlast Ordinary Faucet Washers
6 to 1

You can stop costly faucet leaks that boost water, fuel and labor costs and ruin expensive fixtures. Insist on pat'd "EASY-TITE" Faucet Washers—made of DUPONT NEOPRENE to withstand absorption and extreme high temperatures (upwards of 300° F). Fabric reinforced like a tire, "EASY-TITES" can't split or mush out of shape. Outlasting ordinary washers 6-to-1, "EASY-TITES" have cut faucet repairs to a minimum and brought maintenance costs sharply down in plants, hospitals, schools, hotels and institutions everywhere.

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2503-05 Third Ave., Dept. AP-60, New York 51, N. Y.

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World's leading specialists in
plumbing and heating maintenance.

L.C.L.

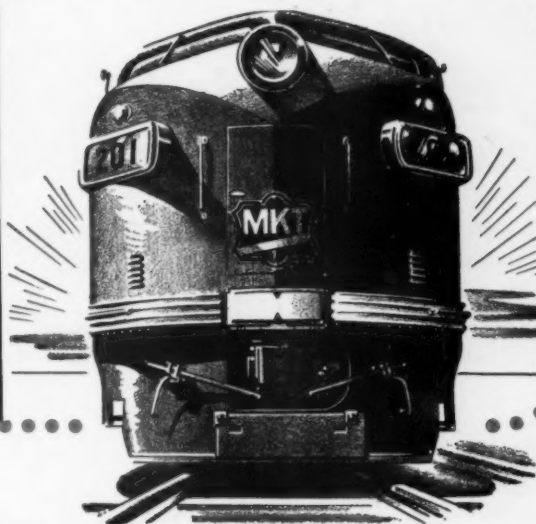
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fast and dependable

via KATY KOMET
and other Katy Fast Freights

to and from
**MISSOURI, KANSAS,
OKLAHOMA and TEXAS**

*speeds shipments
whatever their size*



COORDINATED RAIL-TRUCK SERVICE

Just phone your nearest Katy representative and tell him *what* you have to ship and *where* it's going.

From then on, Katy's safe, modern, ON-TIME L. C. L. service takes over until shipment is delivered to your customers' door.

**Free pick-up and delivery
from and to shippers' door**

All cars are worked at our freight houses day of arrival.



NATURAL ROUTE **↓** SOUTHWEST

Contact your
Katy representative
for details



Serving

**World's Industries
in Countless Ways**

WESTERN Felt

JUST A FEW USES:

- Retaining lubricants
- Isolating vibration
- Controlling temperature
- Reducing weight
- Excluding dust, grit, etc.
- Cushioning shock
- Filtering liquids
- Grinding and polishing gaskets, grommets, etc.
- Padding, packing, sealing

Felt's versatility suggests unlimited applications for design needs. Western Felt is available in any form—rolls, sheets, custom cut parts. Felt can be treated chemically to meet practically any requirement.

Western Felt, processed from wool-soft to rock hard does not fray, ravel or lose its shape. It is cut to remarkably close tolerances and its uniformity is unsurpassed. Felt can be supplied to meet Army, Navy and S.A.E. specifications.

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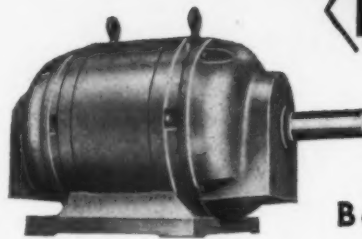
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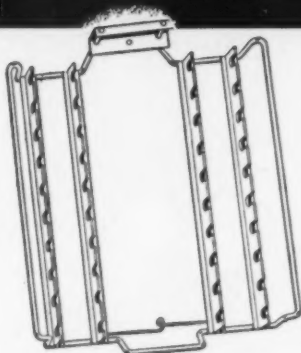
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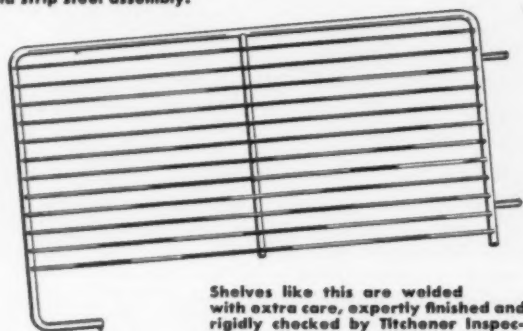
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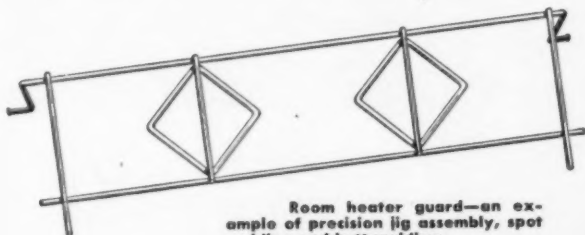


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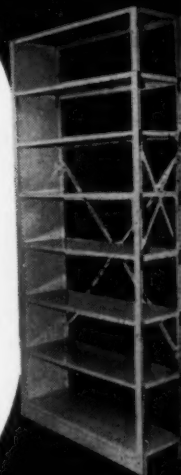
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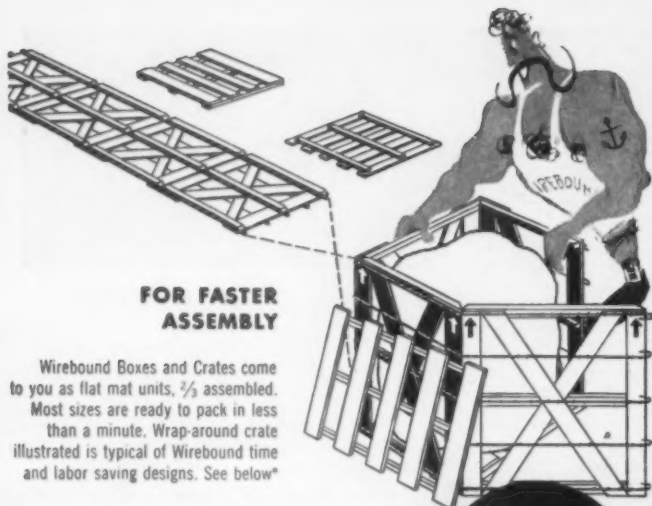
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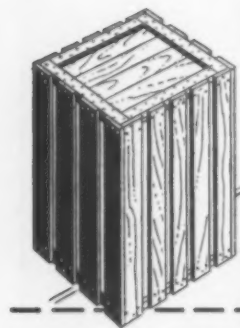
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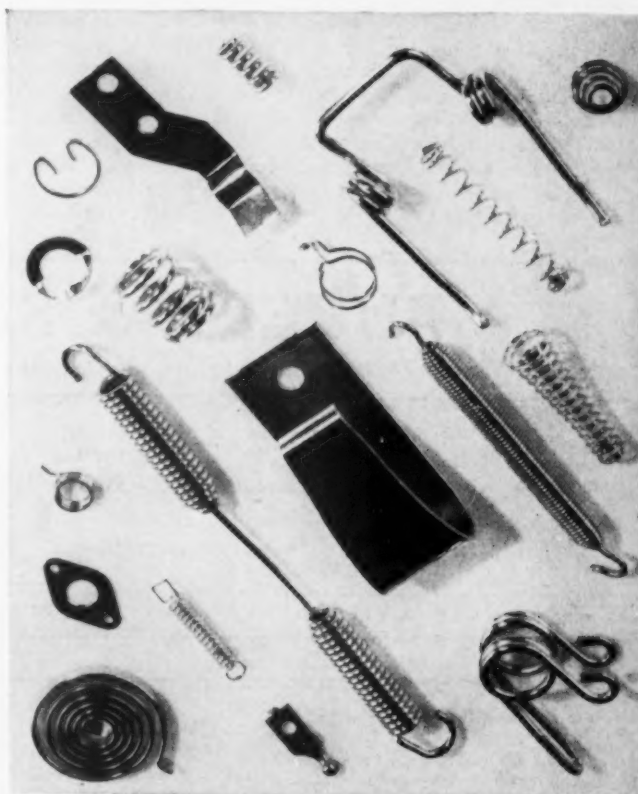
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NO SHORTAGE OF IRON ORE U. S. STEEL OFFICIAL STATES

There is no shortage of iron ore, according to a recent statement prepared by John G. Munson, Vice President—Raw Materials of United States Steel Corporation of Delaware. Mr. Munson estimated at more than 77 billion tons the available domestic reserves of iron ores of the kind in use at this time plus additional usable ores. The reserves of United States Steel amounted to 19 per cent of this total, he said.

"What is taking place today in the iron ore industry does not involve a present ore shortage, but rather is a re-evaluation of various future sources of supply," the statement said. "Recent discussion of the subject, however, may have confused those not familiar with the facts into believing that this Nation is short of iron ore."

"The Lake Superior District ores having higher iron content never were expected to supply the steel industry of the United States forever, and various American steel companies have been planning accordingly for a long time past. The current talk of an iron ore shortage has come solely from the foreseeable exhaustion some years hence of the deposits of

higher iron content ore in the Lake Superior region.

"A two-fold solution of this problem is being carried out in ample time by many companies in the steel industry. First, they are seeking through new processes and new beneficiating plants to increase the use of the immense quantities of lower grade ores in the Lake Superior District, thus husbanding the supply of 'direct shipping' iron ore of higher grade remaining in that district."

"Second, various steel companies are undertaking active and large scale developments of extensive ore bodies in North and South America and in Africa further to supplement and conserve domestic ore reserves. It is highly probable that the use of such lower grade domestic ores and the importation of such foreign ores will at some time in the future amount to tonnages in excess of those from the Lake Superior District in the past."

"United States Steel today is progressing energetically toward the development and utilization of such lower grade domestic ores and also toward bringing into production its iron ore deposits in Venezuela. There is no limitation upon any other steel company to prevent it from embarking upon similar programs, if it so desires."

DOW ISSUES GUIDE FOR BUYERS OF TREATED WOOD

The Dow Chemical Company has issued a three-page set of instructions covering recommendations for buying wood treated with formulations of pentachlorophenol to resist the attack of decay, fungi, wood-destroying insects and dimensional changes caused by excessive moisture or lack of moisture.

The guide covers wood treated by the following processes:

1. Pressure treatment
2. Hot and cold immersion
3. Dri-Vac
4. Cold soaking
5. Dipping

Utility, railway, public works, wood products manufacturers, industrial, automotive, agricultural implements, marine, mine and other buyers of wood and wood products have long requested the information contained in this guide. It will be helpful in setting up purchasing specifications covering individual requirements for "penta" treated wood and wood products.

Copies of this paper may be obtained by writing to the company or to the editor of this publication.

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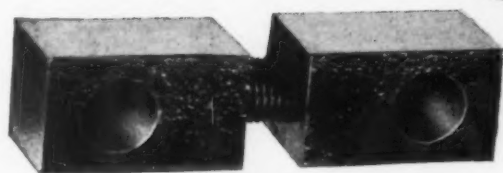
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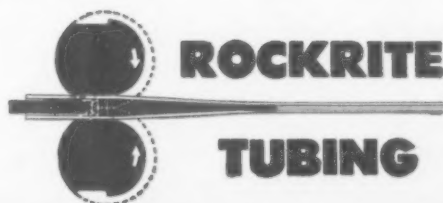
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NEW



POSITIVE CLUTCH

"Dyno-Mite"® Screw Drivers
give you . . .

NEW FLEXIBILITY!

Wherever extreme sensitivity and uniform torque adjustments are needed, Millers Falls famous "Adjustomatic"® Clutch screw drivers are making production history. Now, for the vast number of applications demanding variable torque, Millers Falls has developed a new, *positive clutch* with kick out controlled by driving pressure. Thus any desired torque can be applied — the harder you push, the harder it drives.

NEW ECONOMY!

These new *Positive Clutch* "Dyno-Mite" Screw Drivers give you the same smooth, dependable operation and high output that have made Millers Falls "Adjustomatic" Clutch models such favorites — but simplicity of design makes possible substantially lower prices. On any application where variable torque is desired, they offer the greatest values of any power screw drivers made.

NEW SPEED!

Because workers can instantly apply the torque needed for each individual driving operation, production speed is increased materially. Operators can work faster, too, because danger of stripped slots is minimized by the fact that driving action automatically stops unless sufficient pressure is applied to hold bit firmly in place.

Millers Falls new, *Positive Clutch* "Dyno-Mite" Screw Drivers are available in a wide range of capacities and speeds. Write today for name of your nearest distributor or survey of your particular requirements by our highly trained staff of expert sales engineers.

MILLERS FALLS COMPANY

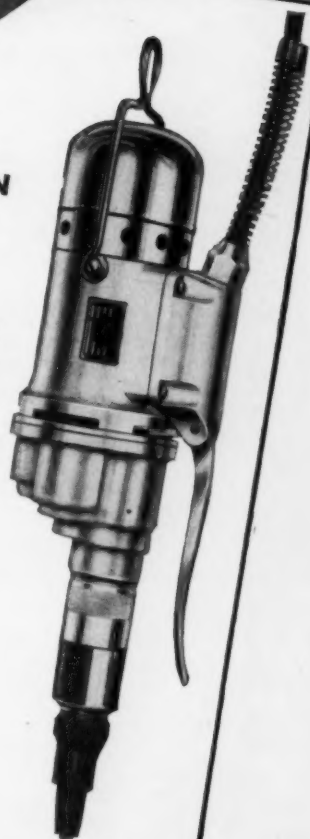
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**MILLERS FALLS
TOOLS**

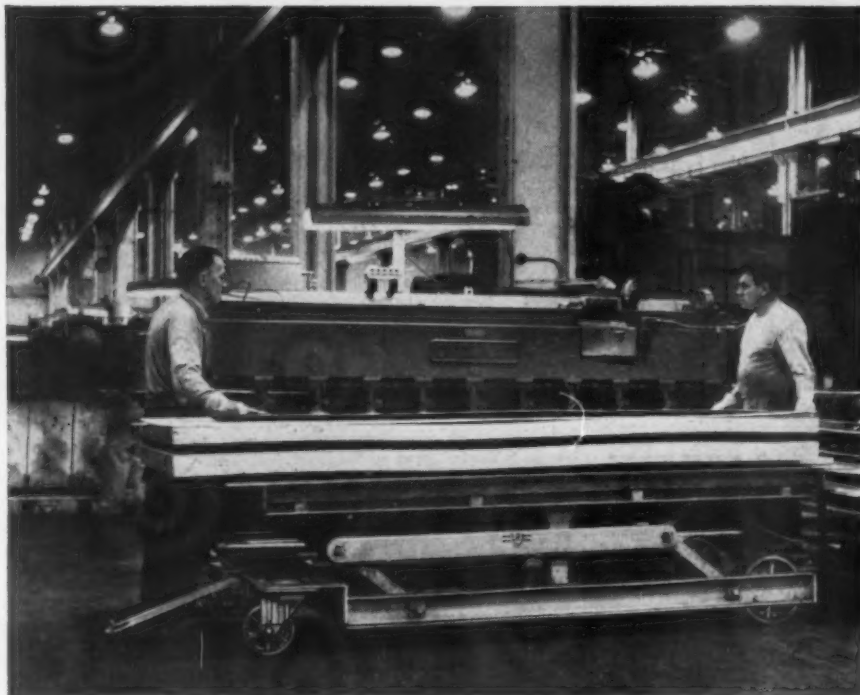
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PRODUCTION STAR ON DELICATE ASSEMBLY

For assemblies usually considered too delicate for power screw driving, Millers Falls super-sensitive "Adjustomatic" Clutch really shines. Torque can be adjusted quickly and accurately. Operation is velvet-smooth and vibrationless. Available on the compact, light, highly efficient No. 50 shown at right as well as the power-packed "Dyno-Mite" line.



HOW CARRIER
Cuts Costs
THROUGH THE
Reducible
30%



At Carrier Corporation's Syracuse plant, these positioning tables equipped with Bassick Super Heavy-Duty Casters cut cost of moving sheet steel from storage to presses.



Super Heavy-Duty Caster, with 10 in. wheel, is so strong it easily carries 10,000 lbs. per caster! Rigid or swivel. Also with 8 in. wheel.

Carrier Corporation is among the many firms that find an extra margin of profit in the "Reducible 30%" of materials-handling—the *one* manufacturing cost ripe for reduction today, cost analysts say. Wages, taxes, plant overhead—the other 70% are tough to trim. **MORAL:** Look to materials-handling for cost savings.

THIS "BIG-BOY" TAKES A LOAD OFF
THE Reducible 30%

The simplest, safest, most economical way to move the heaviest loads, as Carrier and other top companies know, is on Bassick Super Heavy-Duty Casters.

This is only one of the many outstanding Bassick Casters that save production time, reduce maintenance on floors and "rolling stock." Other Bassick cost-cutting aids to materials-handling include position locks, grooved-wheel casters for angle track, "FLOATING-HUB" Casters, the new "Alcore" rubber-tread wheels, etc.

For information on these products, write to THE BASSICK COMPANY, Bridgeport 2, Conn. Division of Stewart-Warner Corp. In Canada: Bassick Division, Stewart-Warner-Alemite Corp., Ltd., Belleville, Ont.



Bassick

*Making more kinds
of Casters...
Making Casters
do more*

YOU CAN BE **SURE**... IF IT'S
Westinghouse

**IT'S NEW!
COMPLETE!
UNIFORM!**

SIZE 0

SIZE 1

SIZE 2

SIZE 3

SIZE 4

STANDARD ENCLOSURE

Life-Linestarter*

New Dollar-saving Teammate for A-C Motors

- for **production-conscious users** of motor control
- for **cost-conscious executives** looking for ways to reduce operating expenditures and inventories
- for **machinery manufacturers**, who want to offer maximum continuity and ease of service to their customers...

plus initial savings in starter installation

plus greater machine salability resulting from compact size, uniform wiring, simplified construction

The new Life-Linestarter is a major advancement in motor control. It's the culmination of 40 years' experience and more than six years of laboratory tests and field trials... thoroughly field-proved through wide use under actual operating conditions. It offers more starter per dollar... on every count.

Life-Linestarters are best because they offer uniformity and completeness of line... uniformity of appearance and construction.

Also check these other features—superior performance, positive operation, ease of installation—found in detail in Booklet B-4677. Ask your Westinghouse salesman for a copy of a Trans-Vision presentation of the new Life-Linestarter. Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania. J-30020

*Trade Mark

Westinghouse

Life-Linestarter



TOMORROW'S STARTER—TODAY!

Announcing the **NEW** JENKINS **SWINGTITE**

with an exclusive new design
that assures smooth action,
positive closure, and longer life

In the new Jenkins SWINGTITE Fast-Action Bronze Gate Valve, the exclusive rolling disc and guide track design lengthens valve life and assures maximum tightness as it prevents uneven wear of seating surfaces. As the valve is opened or closed, guide rims around the seating surfaces of discs roll freely over guide tracks cast in the body, distributing wear evenly, dislodging foreign matter, and providing a polishing action for seating surfaces.

The SWINGTITE can be opened or closed instantaneously and easily with less than a quarter turn of the malleable iron lever which activates the self-adjusting ball and socket type double disc.

Wherever full, free flow is essential . . . where valve opening or closing must be instantaneous . . . you will see more and more Jenkins SWINGTITE Bronze Gate Valves setting new standards of performance and endurance. They are recommended especially for such services as laundry machinery, dish-washing equipment, gasoline and fuel oil lines, fire extinguishing steam lines in kitchens, and dispensing lines to tanks or vats.

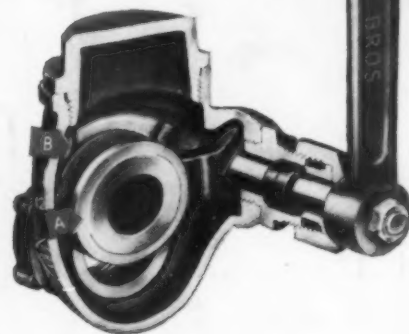
Get all the facts on the new Jenkins SWINGTITE. Find out how much smoother-operating, how much longer-lasting these fast-action Bronze Gate Valves can be when Jenkins builds them. Send for the new folder, Form No. 196, containing full details. Jenkins Bros., 100 Park Avenue, New York 17, N.Y. Jenkins Bros., Ltd., Montreal.

Sold through leading Industrial Distributors



125 lbs. Steam
200 lbs. O.W.G.

**NO OTHER VALVE
of its type
HAS THIS FEATURE**



Notice the guide rims (A) of the discs which rotate freely on the guide tracks (B) cast in the body, as the valve opens or closes. This roller action provides a self-cleaning and polishing effect, and also distributes the wear, since the seating position of the discs changes with each closing. Rapid, uneven wear is prevented, and continuous tight closure assured.

JENKINS

LOOK FOR THE DIAMOND MARK

VALVES



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THE NATIONAL MAGAZINE FOR PURCHASING AGENTS

A CONOVER-MAST PUBLICATION

205 EAST 42nd STREET
NEW YORK 17, N. Y.

June 8, 1950

IMPORTANT NOTICE: HERE'S HOW TO GET THE MAXIMUM VALUE
FROM YOUR JUNE "PURCHASE FOR PROFIT"
ISSUE OF PURCHASING MAGAZINE.

Dear PURCHASING Reader:

Watch for your June issue of PURCHASING! It's now on the way to you -- with a wealth of practical down-to-earth cost-saving information on materials, methods, products, and equipment compiled to help you and your company PURCHASE FOR PROFIT.

Months of preparation have gone into this issue. We want you to use it and to get the utmost value from the reports and suggestions that it contains. That is the reason for this letter, and enclosures.

In carrying out the PURCHASE FOR PROFIT theme, the editorial section of the June issue presents 259 actual case study examples of constructive purchasing -- cost-saving opportunities classified under ten major headings: Production Tools and Equipment; Machine Tools; Electrical; Materials and Components; Product Finishing; Materials Handling; Packaging and Shipping; Maintenance; Safety; and Office Equipment.

What other purchasing agents have discovered through experience presents similar opportunities for you. Here's the KEY.

Attached to this letter is a complete PURCHASE FOR PROFIT index, keyed numerically to the items and studies in the June issue, and showing the name and address of every manufacturer whose products are used to illustrate these cost-saving opportunities.

You will undoubtedly want more specific information on certain of these items that are particularly appropriate to your own needs. By using the PURCHASE FOR PROFIT index, you will be able to write any of these manufacturers direct. Or, if you wish, we shall be glad to make it even easier for you. Simply circle the numbers on the attached READER SERVICE CARD and drop it in the mail to us, and we will ask the manufacturers to send you the desired information.

We urge you to study this issue and to make use of this service.

Yours for Profitable Purchasing,

Stuart F. Heinritz
EDITOR

S.F. Heinritz

UNIVERSITY OF CHICAGO

1957

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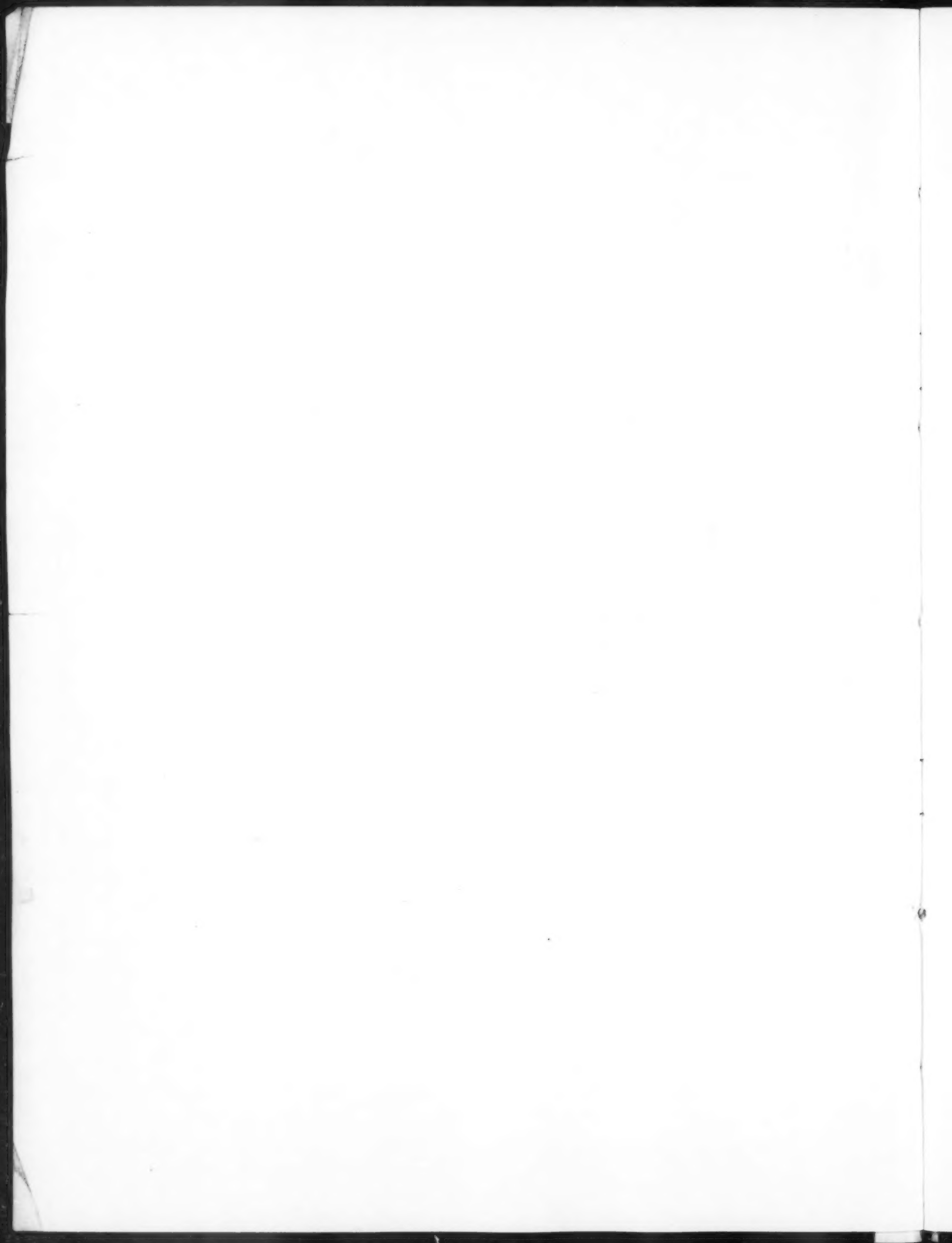
Manufacturers' Index of
COST-SAVING ITEMS
Appearing in PURCHASE FOR PROFIT
Issue of
PURCHASING MAGAZINE
JUNE, 1950

—HOW TO USE THIS INDEX—

THIS index supplies the names and addresses of the manufacturers of the materials, equipment or tools that made possible the time and cost savings and increased production described in the 259 Cost-Saving case histories published in the June PURCHASE FOR PROFIT issue of PURCHASING Magazine. It enables readers to write direct to these manufacturers for detailed information about their respective equipment, tools or materials referred to in the Cost-Saving items.

TO save multiple letter-writing, readers are invited to use the accompanying Reader Service prepaid postcard, merely circling the numbers of the items on which they want further information. Or, they may write direct (on company letterhead) to Reader Service Department, PURCHASING Magazine, 205 E. 42nd St., New York 17, N.Y., listing the numbers of Cost-Saving items on which they would like to have manufacturers' literature.

IT is suggested that you insert this index in your June issue of PURCHASING.



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Purchase for Profit Issue
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June 1950

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- 355 - STANDARD CONVEYOR CO., North St. Paul 9, Minn.
- 356 - THE YALE & TOWNE MFG. CO., Roosevelt Boulevard, Philadelphia 15, Pa.
- 357 - ANTHONY COMPANY, Streator, Ill.
- 358 - MECHANICAL HANDLING SYSTEMS, INC., 4600 Nancy Ave., Detroit 13, Mich.
- 359 - MECHANICAL HANDLING SYSTEMS, INC., 4600 Nancy Ave., Detroit 12, Mich.
- 360 - THE ELWELL PARKER ELECTRIC CO., Cleveland 14, Ohio.
- 361 - REPUBLIC RUBBER DIVN., Youngstown, O.
- 362 - THE ELWELL PARKER ELECTRIC CO., Cleveland 14, Ohio.
- 363 - TOWMOTOR CORP., 1226 E. 152nd St., Cleveland, Ohio.
- 364 - BARRETT-CRAVENS CO., 4609 S. Western Blvd., Chicago 9, Ill.
- 365 - TOWMOTOR CORP., 1226 E. 152nd St., Cleveland, Ohio.
- 366 - TOWMOTOR CORP., 1226 E. 152nd St., Cleveland 10, Ohio.
- 367 - THE YALE & TOWNE MFG. CO., Roosevelt Blvd., Philadelphia, Pa.
- 368 - DRAVO CORP., Neville Island, Pittsburgh, Pa.
- 369 - G. B. LEWIS COMPANY, WATERTOWN, Wis.
- 370 - G. B. LEWIS COMPANY, Watertown, Wis.
- 371 - BAKER INDUSTRIAL TRUCK DIVN., Baker-Raulang Co., 1250 W. 80th St., Cleveland, O.
- 372 - NATIONAL SAFE TRANSIT COMMITTEE, 1010 Vermont Ave., N.W., Washington, D.C.

- 373 - WIREBOUND BOX MFRS. ASSN., 105 So. La Salle St., Chicago, Ill.
- 374 - PURCHASING MAGAZINE, 205 E. 42nd St., New York, N. Y.
- 375 - INDUSTRIAL MARKING EQUIPMENT CO., 7 E 48th St., New York, N. Y.
- 376 - GREENFIELD TAP & DIE CORP., Greenfield, Mass.
- 377 - PAISLEY PRODUCTS INC., 1770 Canalport Ave., Chicago, Ill.
- 378 - WIREBOUND BOX MFRS. ASSN., 105 So. La Salle St., Chicago, Ill.
- 379 - ACME STEEL CO., 2840 Archer Ave., Chicago
- 380 - ACME STEEL CO., 2840 Archer Ave., Chicago
- 381 - MINN. MINING & MFG. CO., 900 Fauquier Ave., St. Paul, Minn.
- 382 - BAUER & BLACK, Industrial Tape Divn., 2500 So. Dearborn St., Chicago, Ill.
- 383 - GAYLORD CONTAINER CORP., 111 No. Fourth St., St. Louis, Mo.
- 384 - ACME STEEL CO., 2840 Archer Ave., Chicago
- 385 - MID-STATES GUMMED PAPER CO., 2515 So. Damen Ave., Chicago, Ill.
- 386 - ISLAND EQUIPMENT CORP., 27-01 Bridge Plaza North, Long Island City, N. Y.
- 387 - THE HINDE & DAUCH PAPER CO., Sandusky, O.
- 388 - ROTARY LIFT CO., Memphis 2, Tenn.
- 389 - BOSTITCH, Westerly, R. I.
- 390 - EDWARD ERMOLD CO., 652 Hudson St., New York, N.Y.
- 391 - BAUER & BLACK, Industrial Tape Divn., 2500 So. Dearborn St., Chicago, Ill.
- 392 - COMMERCIAL CONTROLS CORP., Rochester, N.Y.
- 393 - WIREBOUND BOX MFRS. ASSN., 105 So. La Salle St., Chicago, Ill.
- 394 - INDUSTRIAL MARKING EQUIPMENT CO., 7 E. 48th St., New York, N. Y.
- 395 - ADDISON-SEMMES CORP., Racine, Wis.
- 396 - ACME STEEL CO., 2840 Archer Ave., Chicago
- 397 - MID STATES GUMMED PAPER CO., 2515 So. Damen Ave., Chicago, Ill.
- 398 - ACME STEEL CO., 2840 Archer Ave., Chicago
- 399 - HANDLING DEVICES, INC., 581 Boylston St., Boston, Mass.
- 400 - LEEDS & NORTHRUP CO., Stenton Ave., Philadelphia 44, Pa.
- 401 - DELTA MANUFACTURING DIVN., 600 E. Vienna Ave., Milwaukee, Wis.
- 402 - EUTECTIC WELDING ALLOYS CORP., 40 Worth St., New York, N. Y.
- 403 - THE INTERNATIONAL NICKEL CO., INC., 67 Wall St., New York, N. Y.
- 404 - ELWELL PARKER ELECTRIC CO., Cleveland 14, Ohio.
- 405 - LINCOLN ENGR. CO., 5701 Natural Bridge Ave., St. Louis, Mo.
- 406 - LINCOLN ENGR. CO., 5701 Natural Bridge Ave., St. Louis, Mo.
- 407 - LINCOLN ENGR. CO., 5701 Natural Bridge Ave., St. Louis, Mo.
- 408 - LINCOLN ENGR. CO., 5701 Natural Bridge Ave., St. Louis, Mo.
- 409 - DOW CORNING CORP., Midland, Mich.
- 410 - DOW CORNING CORP., Midland, Mich.
- 411 - HONAN-CRANE CORP., Lebanon, Ind.
- 412 - GRINNELL CO., INC., Providence, R. I.
- 413 - THE FULLER BRUSH CO., Industrial Divn., 3636 Main St., Hartford, Conn.
- 414 - D. A. STUART OIL CO., 2727 So. Troy St., Chicago, Ill.
- 415 - THE LINDE AIR PRODUCTS CO., 30 E. 42nd St., New York, N. Y.
- 416 - HONAN-CRANE CORP., Lebanon, Ind.

- 417 - THE GATES RUBBER CO., Denver, Colo.
- 418 - THE GATES RUBBER CO., Denver, Colo.
- 419 - PANGBORN CORP., Hagerstown, Md.
- 420 - METALLIZING ENGR. CO., 38-14 30th St., Long Island City, N. Y.
- 421 - METALLIZING ENGR. CO., 38-14 30th St., Long Island City, N. Y.
- 422 - METALLIZING ENGR. CO., 38-14 30th St., Long Island City, N. Y.
- 423 - F. E. ANDERSON OIL CO., Portland, Conn.
- 424 - DOW-CORNING CORP., Midland, Mich.
- 425 - BIJUR LUBRICATING CORP., 43-01 22nd St., Long Island City, N. Y.
- 426 - EDMONT MFG. CO., Coshocton, Ohio.
- 427 - AMERICAN OPTICAL CO., Southbridge, Mass.
- 428 - EDMONT MFG. CO., Coshocton, Ohio.
- 429 - INTERNATIONAL SHOE CO., Hy-Test Divn., St. Louis, Mo.
- 430 - NATIONAL SAFETY COUNCIL., Chicago, Ill.
- 431 - GRINNELL CO., INC., West Exchange St., Providence, R. I.
- 432 - GLENN L. MARTIN CO., Baltimore, Md.
- 433 - SECURITY STEEL EQUIPMENT CORP., Avenel, N.J.
- 434 - INTERNATIONAL BUSINESS MACHINES CORP., 590 Madison Ave., New York, N. Y.
- 435 - BELDEN MANUFACTURING CO., Chicago 80, Ill. (using company)
- 436 - CLARY MULTIPLIER CORP., San Gabriel, Cal.
- 437 - INTERNATIONAL BUSINESS MACHINES CORP., 500 Madison Ave., New York, N. Y.
- 438 - REMINGTON RAND INC., 315 Fourth Ave., New York, N. Y.
- 439 - REMINGTON RAND INC., 315 Fourth Ave., New York, N. Y.
- 440 - REMINGTON RAND INC., 315 Fourth Ave., New York, N. Y.
- 441 - FRIDEN CALCULATING MACHINE CO., INC., San Leandro, Calif.
- 442 - WOLBER DUPLICATOR & SUPPLY CO., 1201 Cortland St., Chicago, Ill.
- 443 - HERRING-HALL-MARVIN SAFE CO., Hamilton, Ohio.
- 444 - STANDARD REGISTER CO., Dayton 1, Ohio.
- 445 - STANDARD REGISTER CO., Dayton 1, Ohio.
- 446 - STANDARD REGISTER CO., Dayton 1, Ohio.
- 447 - MOORE BUSINESS FORMS, INC., Niagara Falls, N. Y.
- 448 - REMINGTON RAND INC., 315 Fourth Avenue, New York, N. Y.
- 449 - REMINGTON RAND INC., 315 Fourth Avenue, New York, N. Y.
- 450 - NEW BRITAIN-GRIDLEY MACHINE DIVN., New Britain, Conn.
- 451 - ANGIER CORP., Framingham, Mass.
- 452 - W. B. CONNOR ENGR. CO., 114 E. 32nd St., New York, N. Y.
- 453 - LEWIS-SHEPARD PRODUCTS, INC., Watertown, Mass.
- 454 - PRATT & WHITNEY, West Hartford, Conn.
- 455 - LINDBERG ENGR. CO., 2450 W. Hubbard St., Chicago, Ill.
- 456 - NEW BRITAIN-GRIDLEY MACHINE DIVN., New Britain, Conn.
- 457 - OZALID, Divn. of Gen. Aniline & Film Corp., Johnson City, N. Y.
- 458 - AMERICAN OPTICAL CO., Southbridge, Mass.

459 - WORCESTER PRESSED STEEL CO., Worcester, Mass.

